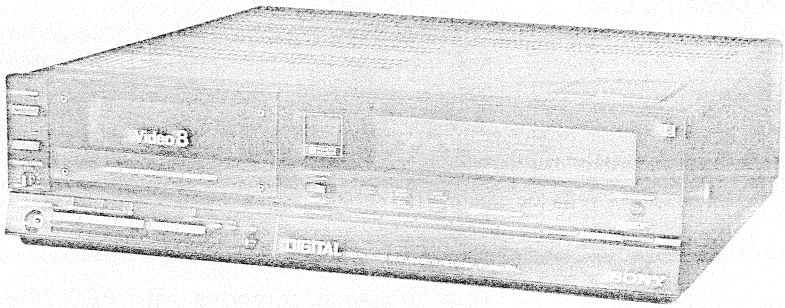
EV-S600
RMT-405

SERVICE MANUAL

AEP Model
UK Model

A 1 1 0



September, 1986

DIGITAL Video 8

SPECIFICATIONS

System

Video recording system
Rotary two-heads,
Helical scanning FM system

Audio recording system
Normal recording
Standard: Rotary head,
FM system (monaural)
PCM: PCM system (2 channels)
MULTI PCM recording
PCM system (2 channels, 6 tracks)

Video signal — AEP MODEL: CCIR system B, G and H, PAL colour
UK MODEL: British TV standards, PAL colour

Usable cassettes — 8 mm video format cassette

Tape speed — SP: Approx. 20.051 mm/sec.
LP: Approx. 10.058 mm/sec.

Recording or playback time
SP: 1hr. 30 min., LP: 3hr. (P5-90)

Fast forward time
Approx. 3 min. (P5-90)

PCM, MULTI PCM

Sampling frequency
31.25 kHz

Audio frequency	20 Hz–15 kHz
Dynamic range	88dB
Wow and flutter	Less than 0.005% RMS

Tuner section

Channel coverage
AEP MODEL
VHF E2–U10
UHF 21–69
UK MODEL
UHF B21–68

Programming system
30 programme memories

RF output signal — UHF channels E30/B30 to E39/B39 (variable), 75 ohms, unbalanced

Aerial input — 75-ohm, asymmetrical serial socket

— Continued on next page —

8 VIDEO CASSETTE RECORDER

SONY®

MICROFILM

VIDEO

Inputs and outputs

Video input	EUROCONNECTOR: 21-pin (pin 20) 1 V (p-p), 75 ohms, unbalanced, sync negative
Video output	EUROCONNETOR: 21-pin (pin 19) 1 V (p-p), 75 ohms, unbalanced, sync negative
Audio inputs	EUROCONNECTOR: 21-pin (pins 2 and 6) More than 10 kilohms, −6 dBs AUDIO IN: phono jack 47 kilohms, −10 dBs (0 dBs = 0.775 V rms)
Audio outputs	EUROCONNECTOR: 21-pin (pins 1 and 3) Output impedance less than 1 kilohms −6 dBs with 10 kilohms load, unbalanced AUDIO OUT: phono jack Output impedance less than 1 kilohms −10 dBs with 47 kilohms load, unbalanced

Timer

Clock	Crystal lock
Time indication	24-hour cycle
Timer setting	Only for recording 6 events/3 weeks max, adjustable for any day or for all 7 days of the week

General

Power requirements
AEP MODEL: 220 V ac, 50Hz
UK MODEL: 240 V ac, 50Hz

Power consumption
AEP MODEL: 44 W
UK MODEL: 40 W

Operating temperature
5°C to 40°C (41°F to 104°F)

Storage temperature
−20°C to +60°C (−4°F to + 140°F)

Dimensions	Approx. 355 × 95 × 344 mm (w/h/d) (14 × 3¾ × 13⅝ in.) incl. projecting parts and controls
Weight	Approx. 7.3 kg (16 lb 2 oz)

Accessories supplied

75-ohm coaxial cable for TV connection (1), Connecting cord RK-74H (1), Screwdriver (1), Remote Commander RMT-405 (1), Batteries IEC designation R6 (2)

Whilst the information given is true at time of printing, small production changes in the course of our company's policy of improvement through research and design might not necessarily be indicated in the specifications. We would ask you to check with your appointed Sony dealer if clarification on any point is required.

Note

This appliance conforms with EEC Directives 76/889 and 82/499 regarding interference suppression.

Optional connecting cables

VMC-2121CE (21 pin connector to 21 pin connector),
VMC-2106S (21 pin connector to 6 phono plugs),
VMC-2104MS (21 pin connector to 4 phono plugs)

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

This service manual covers the EV-S600 AEP and UK models. The differences between the models are shown below.

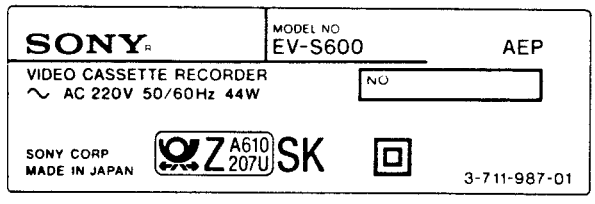
	AEP MODEL	UK MODEL
Operating voltage	220V ac	240V ac
Channel coverage	VHF E2–U10 UHF 21–69	UHF B21–B68
Television system	CCIR system B, G, H	British TV standards
AC power cord (mains lead) plug	Provided	Not provided
STEREO/MONO switch	Provided	Not provided

Please refer to the illustration corresponding to the letter code indicated in the instructions.

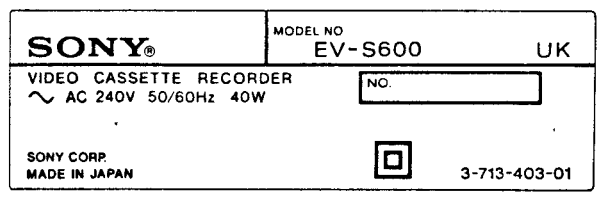
MODEL IDENTIFICATION

— Specification Label —

EV-S600 AEP MODEL



EV-S600 UK MODEL



WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

FOR THE CUSTOMERS IN THE UNITED KINGDOM

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral

Brown: Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

This unit uses 8mm video format cassettes.

It records in the SP mode (approximately 20.051mm/second) and the LP mode (approximately 10.058mm/second) and can play back in the SP mode and the LP mode.

TABLE OF CONTENTS

SECTION 1
GENERAL

1-1. PRECAUTIONS

On safety

- Before operating, check that the operating power voltage and frequency of the unit are identical with those of your local power supply.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the mains outlet if it is not to be used for an extended period of time. To disconnect the lead, pull it out by the plug. Never pull the lead itself.
- The unit is not disconnected from the mains (ac power source) as long as it is connected to the mains outlet, even if the unit itself has been turned off.

On installation

- Allow adequate air circulation to prevent internal heat build-up. Do not cover the holes on the top panel.
- Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation slots.
- Do not install the unit near heat sources such as radiators or air ducts or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- The unit is designed for operation in a horizontal position. Do not install it in an inclined position.
- Keep the unit and cassette tapes away from equipment with strong magnets, as for example a microwave oven or a large loudspeaker.
- Do not place any heavy object (over 13 kg or 28 lbs 10 oz) on the unit.
  Never place any object on the tuning compartment nor on the top of the front panel.

On operation

- When the unit is not in use, turn the power off to conserve energy and to extend its useful life.
- Remove and store video cassettes after recording or playback.

On cleaning

Clean the cabinet, panel and controls with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution.
Do not use any type of solvent, such as alcohol or benzine which might damage the finish.

On repacking

Do not throw away the carton and packing materials. They make an ideal container in which to transport the unit. When shipping the unit to another location, repack it as illustrated on the carton.

On cassette care

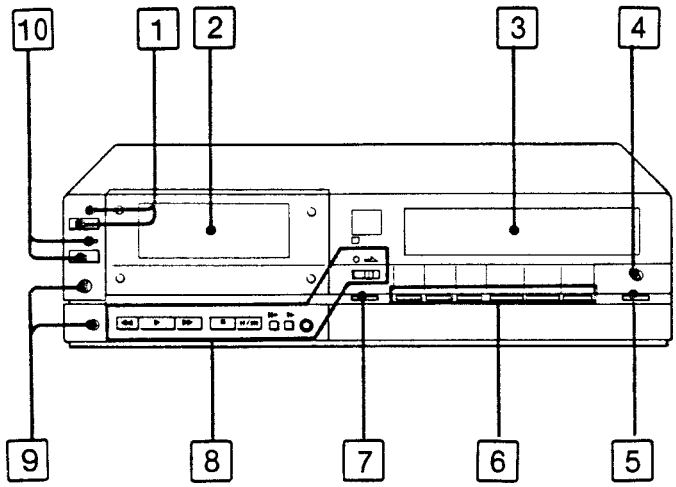
Store cassettes in their cases and keep them in an upright position to prevent intrusion of dust and uneven winding.

On colour broadcasting systems
This machine is designed to record and playback using the PAL colour system. Recording and playback of video sources based on other colour systems cannot be guaranteed.

If you have any questions about this unit, contact your Sony dealer.

1-2. LOCATION AND FUNCTION OF CONTROLS

A-1



Front

A-1

1 ON/STANDBY switch and lamp [p. 14]
Press to turn the power on. The lamp lights up. To turn the unit off, press the switch again.

2 Cassette compartment [p. 16]
Press the ⏏ button to open.

3 Display window.

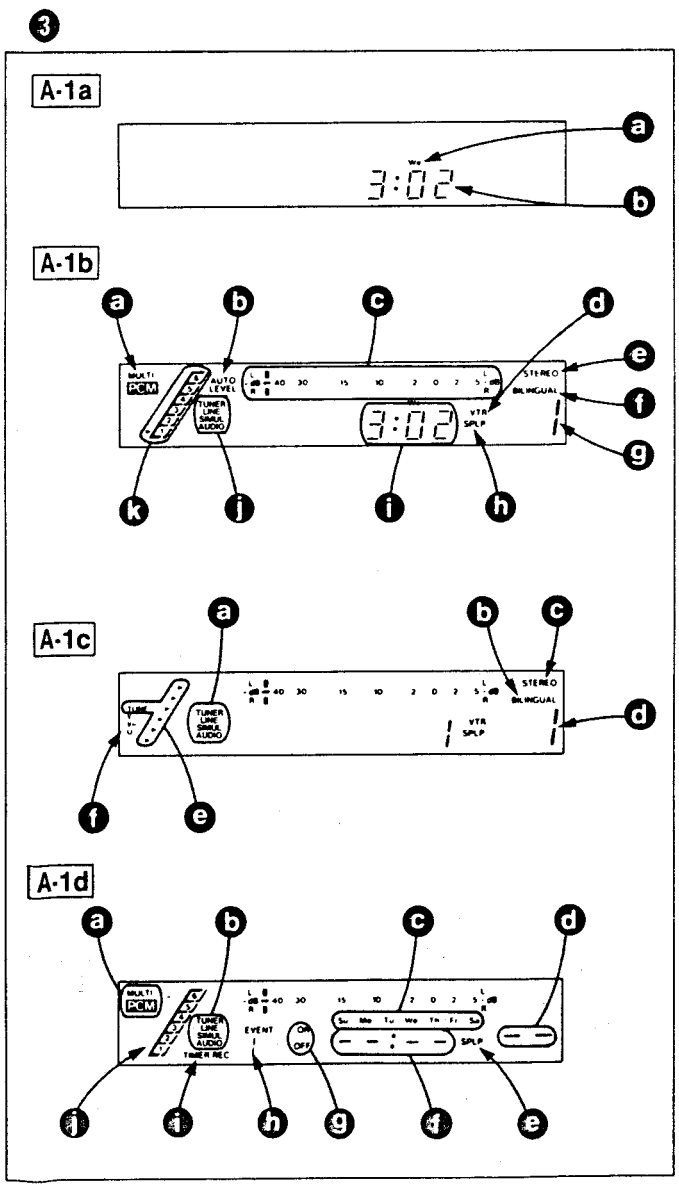
When the power is turned off (but the mains lead is connected) A-1a
ⓐ Day of week
ⓑ Time
The display "0:00" blinks before you adjust the time display.

When the power is turned on A-1b
ⓐ MULTI PCM indicator
ⓑ AUTO LEVEL indicator
ⓒ Peak level meter
ⓓ VTR mode
ⓔ STEREO indicator
ⓕ BILINGUAL indicator
ⓖ Programme number
ⓗ Recording mode SP or LP
ⓘ Current time
ⓙ Input indicator
ⓚ Track of the MULTI PCM recording

When a programme is preset [p. 15] A-1c
ⓐ Input indicator
ⓑ BILINGUAL indicator
ⓒ STEREO indicator
ⓓ Programme position
ⓔ Tuning indicator
ⓕ Band indicator

•EV-S600 AEP MODEL	•EV-S600 UK MODEL
VL: Channels E2–4 and S1–3 VH: Channels M1–10, E5–12 and U1–10 U: Channels E21–69	U: Channels B21–68

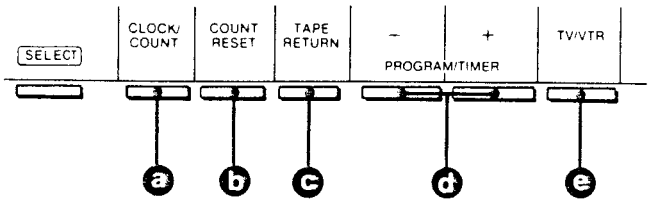
When the timer is set [p. 23] A-1d
ⓐ MULTI PCM indicator
ⓑ Input indicator
ⓒ Day of week
ⓓ Programme position
ⓔ Recording mode SP or LP
ⓕ Timer indication
ⓖ Turn-on/off time
ⓗ Event number
ⓘ TIMER REC indicator
ⓙ Track of the MULTI PCM recording



4 **QUICK TIMER button [p. 26]**
Press to start a timer recording immediately. The recording timer can be set in 30-minute intervals, from 0:30 to 5:00.
Press this button as many times as required until the desired recording time is displayed.

5 **TIMER REC ON/OFF button [p. 24, 25, 27]**
Press to set the recorder in the timer recording stand-by mode. The TIMER REC indicator will light up in the display window. To turn on the power again, or to stop a timer recording, press this button again.

6 **Function buttons**
When the power is turned on,
button ⓐ through ⓔ function as follows:



ⓐ **CLOCK/COUNT button [p. 18, 22]**
Press to change the display in the display window. Each time the button is pressed, the display changes as shown below.

Time-display ⟶ Tape counter
↑ ↓
Tape remain display ⟵

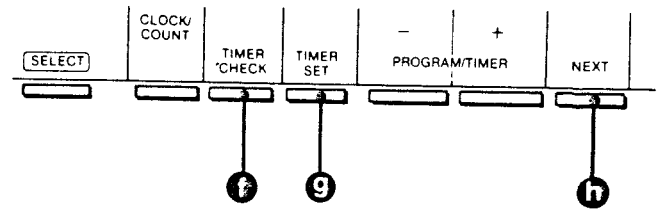
ⓑ **COUNT RESET button [p. 22]**
Press to reset counter to "0000".

ⓒ **TAPE RETURN button [p. 21]**
Press this button in the stop mode to return the tape around the "0000" point on the counter.

ⓓ **+/– PROGRAM/TIMER button [p. 17, 24]**
Press to change the programme or the multi track, to adjust the time and to preset the timer recording time.
Press the + and – buttons simultaneously to erase the contents of a timer programme or to release the timer mode display.

ⓔ **TV/VTR select button [p. 17]**
If your TV is equipped with a 21-pin SCART or PERI-TV connector which can accept the control signal from the EV-S600, this button is operable. To view the picture received or recorded on your VTR, press this button so that the "VTR" indicator is displayed. (When the ▶ button is pressed, the "VTR" mode is selected automatically.)
To watch one TV programme while recording another, turn off the indicator, and set the TV to the TV mode and select the programme on the TV.

When the SELECT button is pressed after the power is turned on,
button ⓕ through ⓗ function as follows:



ⓕ **TIMER CHECK button [p. 24]**
Press to check the contents of a timer programme.

ⓖ **TIMER SET button [p. 23]**
Press to set the timer for recording.

ⓗ **NEXT button [p. 14, 23]**
Press to move the next item to be set.

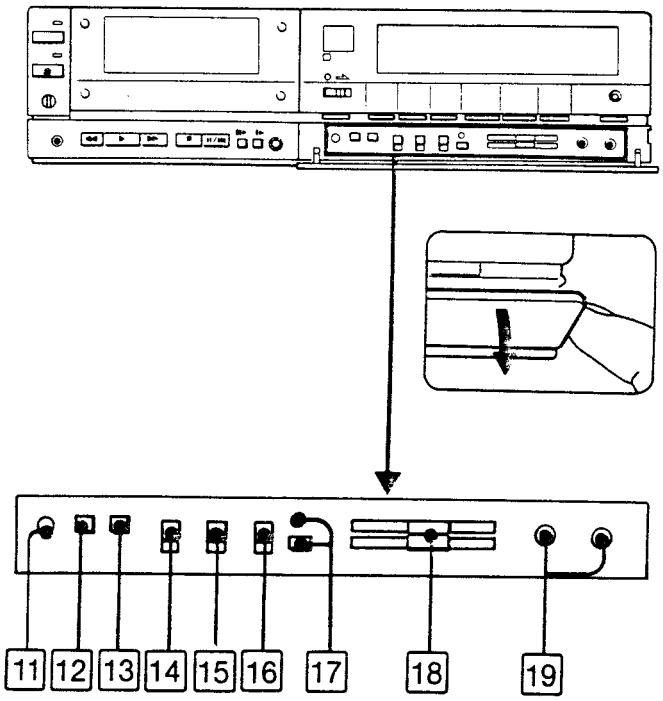
7 **SELECT button [p. 23]**
Press to switch the function of buttons ⓕ, ⓖ and ⓗ.

8 **Tape transport buttons and switch**
◀◀ **(rewind) button:** Press to rewind the tape. Pressing this button during playback enables you to see a high-speed playback in reverse.
▶ **(play) button:** Press to play a tape back. When the ◀◀ button is pressed at the same time as this button, the tape will be automatically played back after it has been completely rewound.
▶▶ **(fast-forward) button:** Press to advance the tape rapidly. Pressing this button during playback enables you to see a high-speed playback.
■ **(stop) button:** Press to stop the tape.
II/▶I **(pause) button:** Press to stop the tape for a moment during recording or playback. A still picture is obtained during playback.
Press again to release the pause mode.
II▶ **(step) button:** Press to view a step-by-step playback picture in the playback pause mode.
I▶ **(slow) button:** press to view a 1/5-speed playback picture. To resume normal playback, press the I▶ button again and then press the II/▶I button.
x2 **(double-speed) button:** Press during playback to view a double-speed playback picture.
Press again to resume normal playback.
RECORD switch: Slide to the right to start recording. While a recording is being made, the lamp lights up.

9 **HEADPHONES jack (stereo minijack) and PHONE LEVEL control**
Connect headphones here to monitor the sound. The volume can be adjusted with the PHONE LEVEL control.

10 **⏏ (eject) button and lamp [p. 16]**
When the power is on, press to open the cassette compartment or to eject a cassette. The lamp illuminates.

A-2



A-2

Inside the front compartment

11 CLOCK SET button [p. 14]
Press to set the timer.

12 INPUT SELECT button [p. 15, 19]
Press to display the desired input signal indication in the window.
TUNER: To record TV programmes.
LINE: To record the audio/video signals from the EUROCONNECTOR on the rear panel.
SIMUL: To record TV programmes and the singlas from the AUDIO IN jacks.
AUDIO: To record the signals from the AUDIO IN jacks.

13 Recording mode (SP/LP) selector [p. 17]
This selects the recording speed, SP or LP. The recording time of any given cassette in the LP mode is 2 times that in the SP mode.
The playback speed is automatically set regardless of the setting of this selector.

14 AUDIO MONITOR (PCM/MIX/STD) selector [p. 22]
Set this switch to the appropriate position when playing back a tape.
PCM (AUTO): To play back the sound on the PCM track. When nothing is recorded on the PCM track, the sound recorded on the standard track is played back regardless of the position of this selector.
MIX: To play back the sound on the PCM and standard tracks simultaneously.
STD: To play back the sound on the standard track.

15 AUDIO MONITOR (MAIN/SUB/MS) selector [p. 22]
Set to play back a bilingual tape. A stereo tape with a pilot signal (the STEREO lamp lights) is played back in the stereo mode regardless of the position of this selector.
MAIN: To listen to the main language.
SUB: To listen to the sub language
M/S: To listen to the main language from the left speaker and the sub language from the right speaker.

16 PCM MODE selector
Select the method of recording of the audio signal.
NORM (Normal): For normal recording on the PCM track.
P (Parallel): For timer recording from the beginning of each track.
S (Series): For continuous timer recording in one of six tracks.

To play back a tape, set as follows.
NORM: To view a playback picture.
P: To monitor a MULTI PCM tape recorded on this unit.
S: If there is no sound when a MULTI PCM tape recorded on another recorder is played back.

17 AUDIO DUB button and lamp
Press during the playback pause mode to record music or commentary on the PCM track of any recorded video tape.
Set the PCM mode selector to NORM.

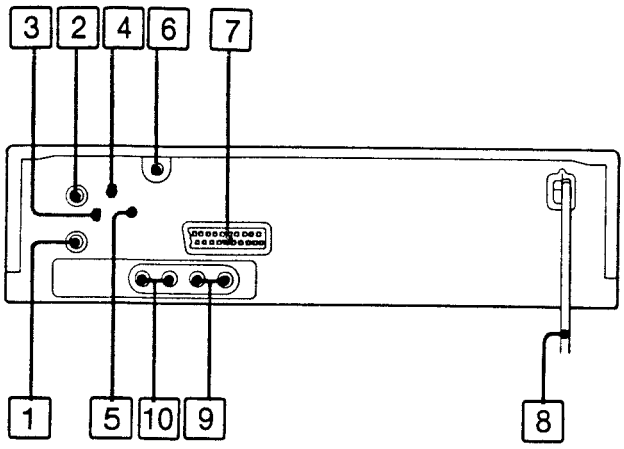
18 RECORDING LEVEL controls [p. 28]
Slide to adjust the recording level of the PCM recording.
Usualy set the upper control to the "AUTO" (left end) position to adjust both left and right channels simultaneously. When you record sound from other audio equipment, adjust both controls manually to get the optimum result.

19 Microphone jacks (stereo minijack)
Connect a microphone equipped with a stereo miniplug.
Select the LINE or AUDIO input with the INPUT SELECT button.

Connection of the microphone and the track to be recorded

Track / Microphone jack	PCM track		Standard track
	L channel	R channel	
L	Microphone sound	Microphone sound	Microphone sound
R	❶ L sound of the connected euipment	❷ Microphone sound	❶ and ❷
L and R	❶ Microphone sound of the L jack	❷ Microphone sound of the R jack	❶ and ❷

A-3



Rear A-3

1 AERIAL OUT socket [p. 11]
Connect the aerial input of the TV receiver using the supplied cable.

2 AERIAL IN socket [p. 11]
Connect the aerial cable.

3 LOCAL/DX switch [p. 12]
Normally set this switch to DX. If the TV signal is very strong, set the switch to LOCAL.

4 TEST SIGNAL switch [p. 13]
Set to ON to obtain a test pattern.

5 RF CHANNEL screw [p. 13]
If there is interference on the factory-preset channel for RF output and the output signal from this unit cannot be displayed clearly on the TV screen, adjust the screw with the supplied screwdriver.

6 CONTROL S IN jack (mini jack)
Connect to the equipment supplied with the control S output jack such as the Sony RM-E100V video editing controller. To connect the equipment, remove the cap.

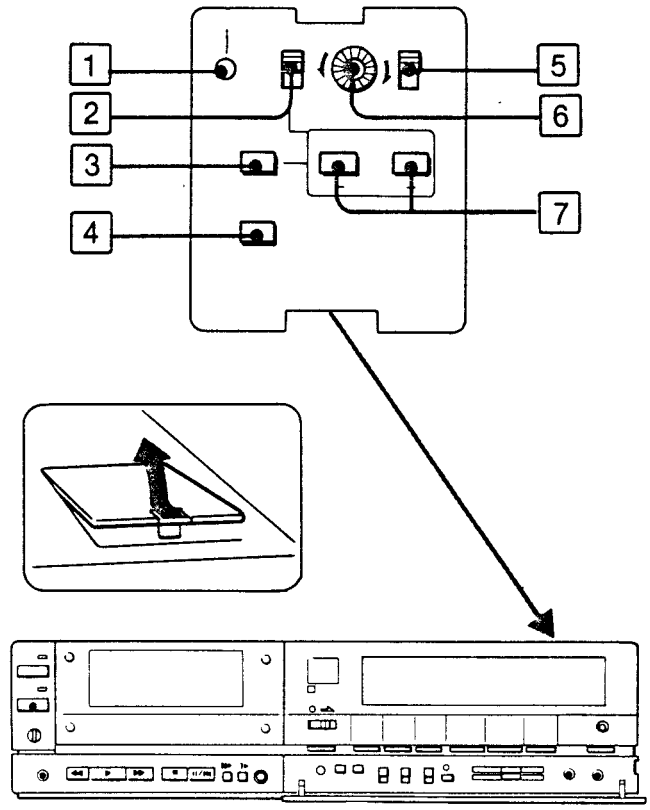
7 EUROCONNECTOR (21-pin) [p. 11]
Connect to the 21-pin connector of a video cassette recorder or a TV/monitor, or to the audio/video input and/or output of these units with an appropriate connecting cable.

8 AC power cord (mains lead)
Connect to an ac (mains) outlet.

9 AUDIO OUT jacks (phono type) [p. 13]
Connect to the audio input jacks of a stereo amplifier, TV, video cassette recorder, etc.

10 AUDIO IN jacks (phono type) [p. 13]
Connect to the audio output jacks of a stereo amplifier, video cassette recorder, etc.

A-4



A-4
Tuning compartment

1 STILL ADJ (adjustment) control [p. 20]
Turn with the supplied screwdriver to stabilize the still picture. This control needs to be adjusted only once.

2 AFT switch [p. 15]
Normally set to ON. The automatic fine tuning circuit locks in and maintains a sharp picture.

3 SEARCH ON/OFF button [p. 15]
Press as the first step in presetting programmes. After presetting, press again.

4 CLEAR button [p. 15]
Press to clear the preset station.

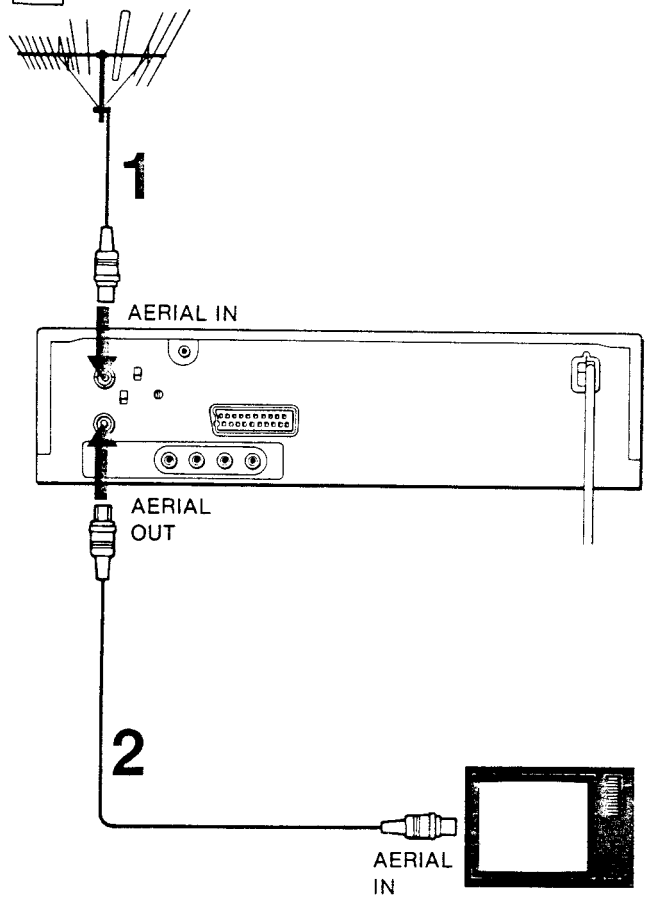
5 AUTO STEREO ON/OFF (MONO) selector (AEP MODEL only) [p. 15]
Normally set to ON. During a stereo broadcast, the mode is automatically set to stereo. If there is too much interference, set the switch to OFF in which case all the TV programmes will be received in monaural.

6 SHARPNESS control [p. 20]
Adjust the sharpness of the picture if necessary. Usually set the control at the centre detent position.

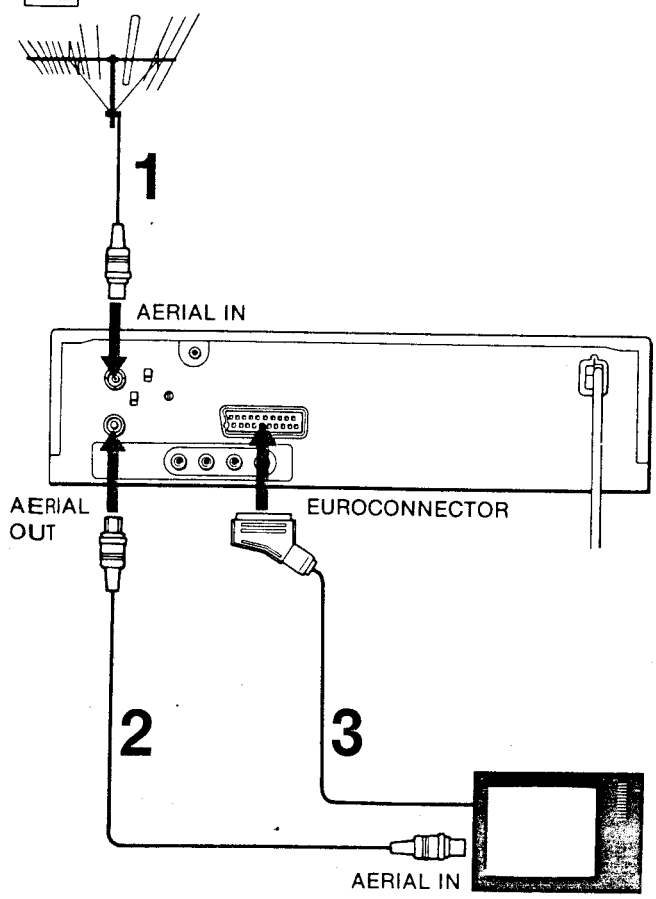
7 TUNING buttons [p. 15]
When the SEARCH ON/OFF button is set to ON, press to tune in a station to be preset.
Press the – button to get a station of lower frequency and the + button to get a station of higher frequency.
When the SEARCH ON/OFF button and the AFT switch are set to OFF, press to fine tune the station.

1-3. CONNECTIONS

B-1



B-2



Notes

- Unplug each unit from the mains outlet before making the following connections.
- Make sure the connections are secure. A loose connection may cause a noisy picture.

CONNECTING A TV

If you connect a TV without audio/video inputs B-1

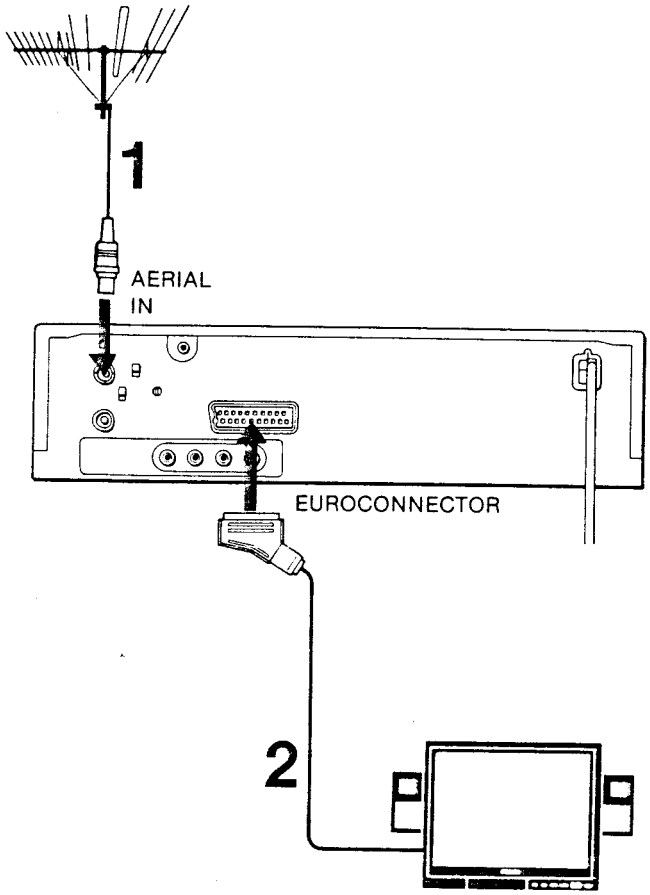
1 Remove the aerial cable form its socket on the TV. Then connect the aerial cable to the AERIAL IN socket on the recorder.
2 Connect the aerial input of the TV to the AERIAL OUT socket on the recorder, using the supplied cable.

If you connect a TV having audio/video inputs B-2

1 Remove the aerial cable from its socket on the TV. Then connect the aerial cable to the AERIAL IN socket on the recorder.
2 Connect the aerial input of the TV to the AERIAL OUT socket on the recorder, using the supplied cable.
3 Connect the EUROCONNECTOR of the recorder to the audio/video inputs (VIDEO/AUDIO IN, MULTI IN, or 21-pin SCART or PERI-TV) on the TV using an appropriate cable. This connection provides better-quality playback poicture and sound.

Now the recorder is set up to intercept all signals from the aerial on their way to the TV. The recorder then passes on the signals to the TV. This is why you can record a programme while it is being shown on the TV, or while the TV is showing another programme, or even when the TV is turned off.

B-3



If you connect a colour monitor having audio/video inputs B-3

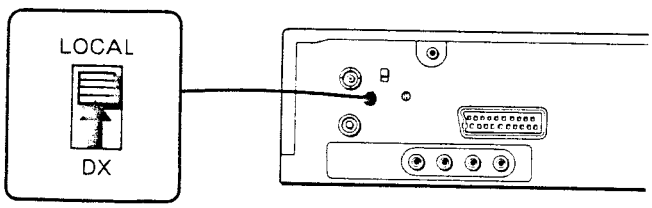
1 Connect a aerial cable to the AERIAL IN socket on the recorder.
2 Connect the EUROCONNECTOR on the recorder to the audio/video inputs (VIDEO/AUDIO IN, MULTI IN, or 21-pin SCART or PERI-TV) on the monitor using an appropriate cable.

Note: To use the Sony KX-series colour monitor, connect the recorder to the BNC-type VIDEO IN and phono-type AUDIO IN connectors on the monitor.

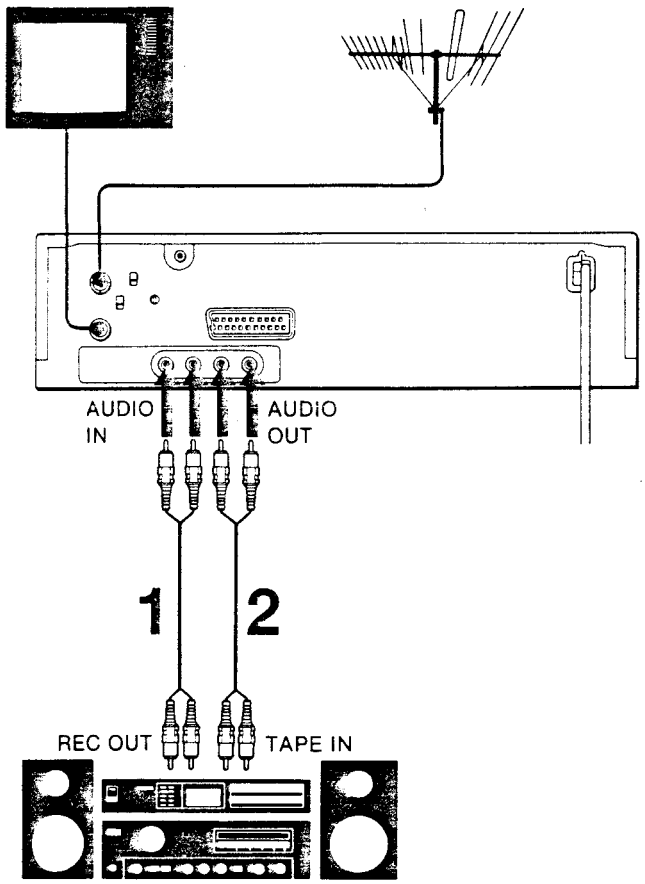
Notice on connection with a colour monitor
Connection between the recorder AERIAL OUT socket and the colour monitor is not possible since the monitor is not equipped with a tuner. For this reason, you cannot watch a TV programme while recording another programme on the recorder.

Notice for customers in a strong signal area B-4
The recorder has booster to assure stable TV reception. However, in areas near TV stations, where the TV signal is very strong, the picture may be affected by the booster. If this happens, set the DX/LOCAL switch on the rear panel to LOCAL.

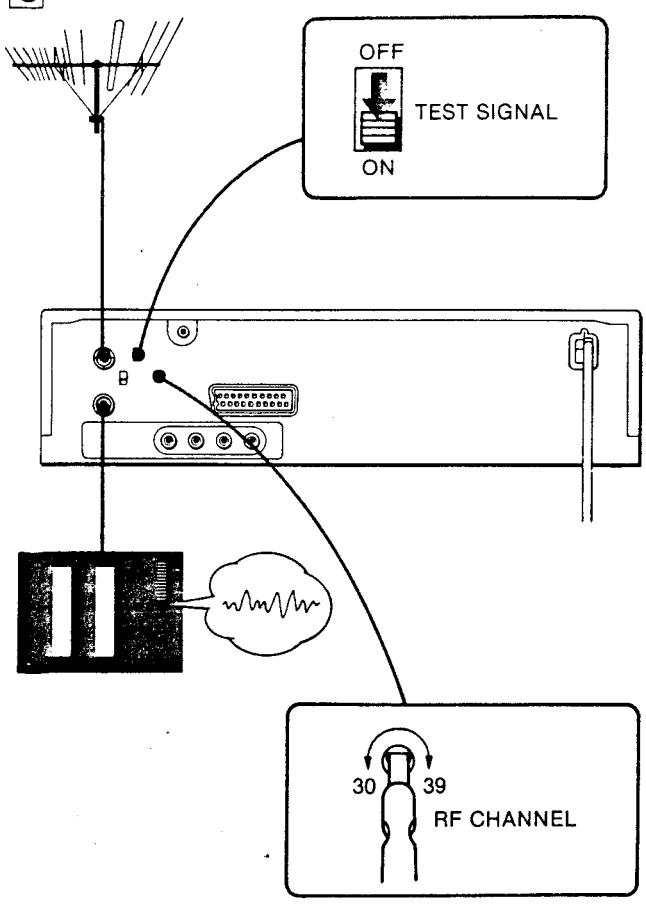
B-4



B-5



C



CONNECTING AN AUDIO SYSTEM B-5

You can enjoy playback of tapes recorded in stereo or record an audio source such as an FM tuner or CD player, when the recorder is connected to your audio system.

1 Connect the AUDIO IN jacks of the EV-S600 to the REC OUT jacks of a stereo amplifier.
2 Connect the AUDIO OUT jacks of the EV-S600 to the TAPE IN jacks of a stereo amplifier.

Notes

- If the VTR is installed near a tuner or a radio, noise may be heard in AM reception. In this case, keep the VTR away from the tuner or the radio, adjust the AM bar antenna for minimum noise, or connect an external AM antenna to the tuner.
- Because the CD player reproduces the sound with a wide dynamic range, adjust the volume carefully not so as to damage your speaker system.
- Before connecting or disconneting the mains lead of the VTR, be sure to turn the connected amplifier off.

1-4. ADJUSTING THE TV C

One of the television programme positions must be adjusted to receive the signal from the recorder.
Note that the adjustment is not necessary, however, when the EV-S600 is connected to the AUDIO/VIDEO inputs on the TV/monitor.

1 After making the connections, press the ON/STANDBY button.
2 Make sure that the recorder is in the stop mode and the TV is in TV mode.
3 Set the TEST SIGNAL switch at the rear of the recorder to ON. The test signal is transmitted on a channel between UHF channels 30 and 39.
4 Turn on the TV and select a programme position which is not being used to receive a TV station. Tune the channel until you see a clear black and white pattern on the TV screen and you hear a continuous tone. This is the recorder's test signal.

If the test picture is free of disturbance, the TV adjustment is complete. Set the TEST SIGNAL switch of OFF.

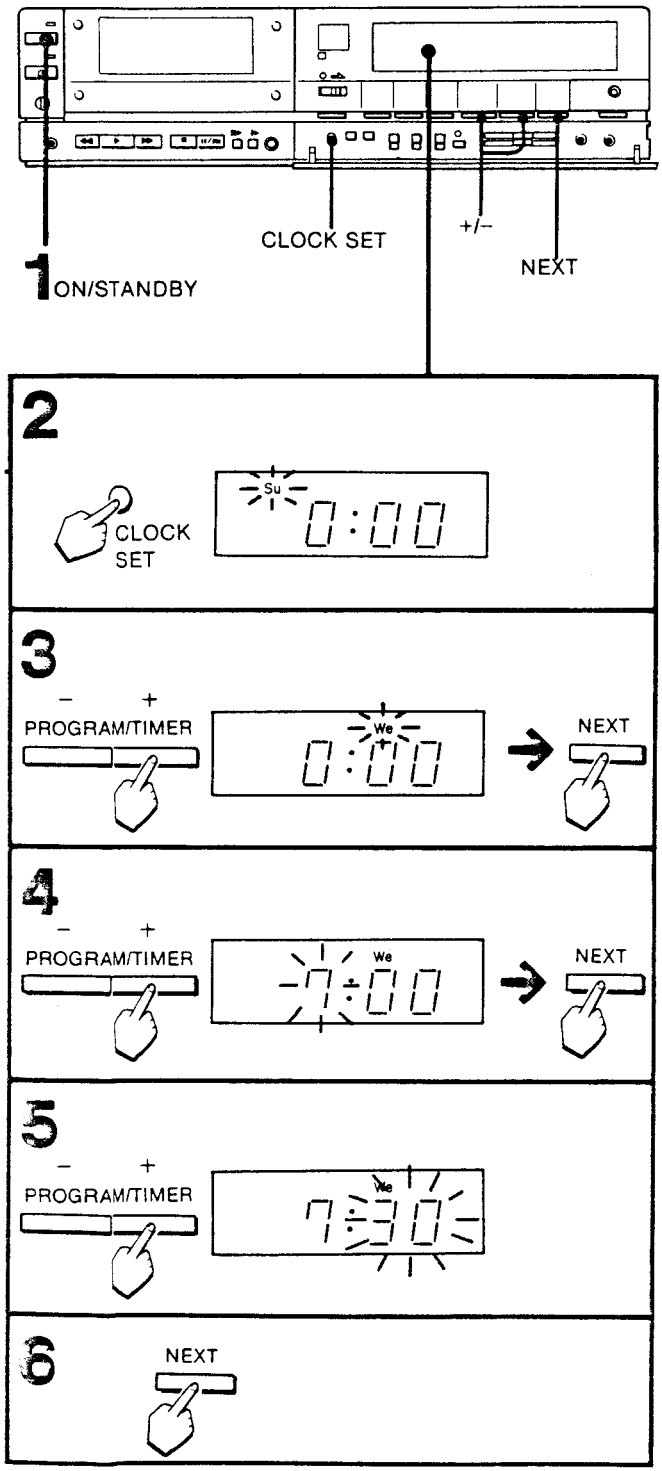
If the test picture is not free of disturbance

1 Reset the TEST SIGNAL switch to OFF.
2 Adjust the channel of the TV to a channel between UHF channels 30 and 39 with the tuning control or the fine tuning control on the TV, so that the TV screen shows no picture and so that a steady rustling sound or no sound heard.
3 Set the TEST SIGNAL switch to ON again.
4 Slowly turn the RF CHANNEL screw on the back of the recorder with the supplied screwdriver, until you see an undistorted test pattern on the TV screen.
5 Now the TV adjustment is complete. Reset the TEST SIGNAL switch to OFF.

If you are not sure how to adjust your TV, please refer to the TV's instruction manual or consult your dealer.

1-5. SETTING THE CLOCK

D



When you connect the mains lead to a mains outlet, the clock in the display window indicates "Su 0:00" to show that it is ready to be set.

Time indication
0:00 = midnight 12:00 = noon

Day indication
Su = Sunday Mo = Monday Tu = Tuesday
We = Wednesday Th = Thursday Fr = Friday
Sa = Saturday

Example: To set for Wednesday morning at 7:30 D

1 Turn on the power.
2 Press the CLOCK SET button.
3 Set the day by pressing the + or – button and press the NEXT button.
4 Set the hour by pressing the + or – button and press the NEXT button.
5 Set the minute by pressing the + or – button.
6 With an announced time signal, press the NEXT button.

The clock now starts operating, showing the correct time. The dots of the colon alternately blink every 30 seconds.

NEXT button
Each time the NEXT button is pressed, the item to be set blinks to let you know the setting order.

+/– buttons
The + and – buttons can be pressed in two ways.

When you hold a button down, the digit will advance continuously until the button is released.

When you press and immediately release a button, the digits will advance by one.

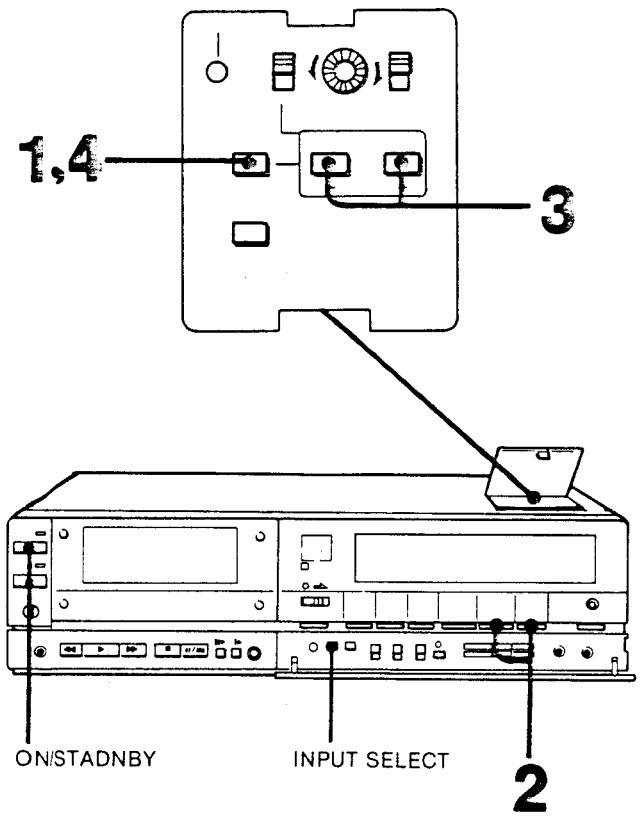
To change the actual clock setting
Press the CLOCK SET button and repeat the clock setting procedure from step 1.

Note
If you have pressed the CLOCK SET button inadvertently, press the NEXT button enough times until the dots of the colon blink.

When power has been interrupted, the time indication reverts to "Su 0:00", showing that the clock must be reset.

1-6. PROGRAMMING TV STATIONS

E



This recorder has 30 programme positions. Once you preset the programmes broadcast in your area, programme selection is simply made by pressing the + or – button on the recorder or the hand-held Remote Commander.

To start programming, turn on the EV-S600 by pressing ON/STANDBY switch and select TUNER by pressing the INPUT SELECT button.

1 Press the SEARCH ON/OFF button.
2 Press the + or – PROGRAM/TIMER button to select the programme position.
   + for a higher-numbered programme position
   – for a lower-numbered programme position
3 Press the + TUNING button to locate a station with higher frequency and the – TUNING button to locate a station with lower frequency. The tuning indicator in the display window shows the approximate location of the current channel. When a station has been received, the search will stop. Press the + or – TUNING button again, until the desired station is received.

Repeat steps 2 and 3 for all the desired stations.

4 Press the SEARCH ON/OFF button again so that the tuning indicator disappears.

To cancel an unused programme

1 Select the programme to be cancelled with the + or – PROGRAM/TIMER button.
2 Press the SEARCH ON/OFF button.
3 Press the CLEAR button.
4 Press the SEARCH ON/OFF button again.

Then the cancelled programme will be skipped when the + or – PROGRAM/TIMER button, or the + or – side of the PROGRAM button on the Remote Commander is pressed. When the corresponding programme number button on the Commander is pressed, the sound of the cancelled programme will be cut out.

To fine tune a station

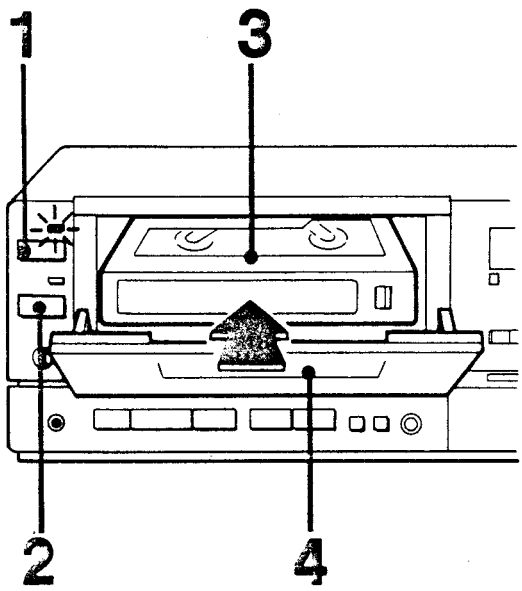
If the picture of a particular station is not acceptable, check that the SEARCH ON/OFF button is set to OFF, set the AFT switch to OFF and keep the + or – TUNING button pressed until the picture becomes clear. To view this particular station, set the AFT switch to OFF.

To hear stereo broadcasts

Normally set the AUTO STEREO ON/OFF selector to ON. If there is too much interference, set the switch OFF in which case all the TV programmes will be received monaural.

1-7. CASSETTE CARE

G-1



Always insert a cassette in the correct direction.
Never insert it upside down.
The lamp inside the compartment blinks while the tape is being loaded. Wait until the blinking stops before proceeding.

CASSETTE INSERTION G-1

1 Turn on the power.
2 Press the ⏏ button.
3 Insert the cassette with the window side up and in the direction of the arrow on the cassette.
4 Press the cassette holder.

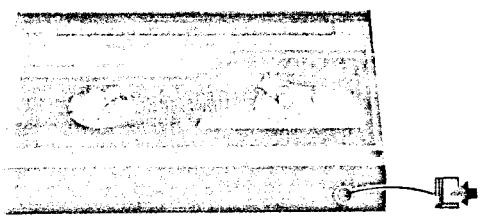
CASSETTE EJECTION

1 Turn on the power.
2 Press the ⏏ button.
After the lamp stops blinking, the cassette holder opens in front.
3 Remove the cassette and close the cassette holder.

THE TAB ON THE CASSETTE G-2

(The photo is Sony cassette.)

G-2



When a new recording is made on a previously recorded cassette, the previous recording will be automatically erased. To avoid erasing a recording, slide the tab out to cover the opening.
When the tab is out, a recording cannot be made. To re-record on a cassette, slide the tab in.

Note
Never insert anything in the small holes on the rear of the cassette. These holes are used to sense the kind of tape, thickness tape, if the tab is out or in, etc.

RECORDING TIME

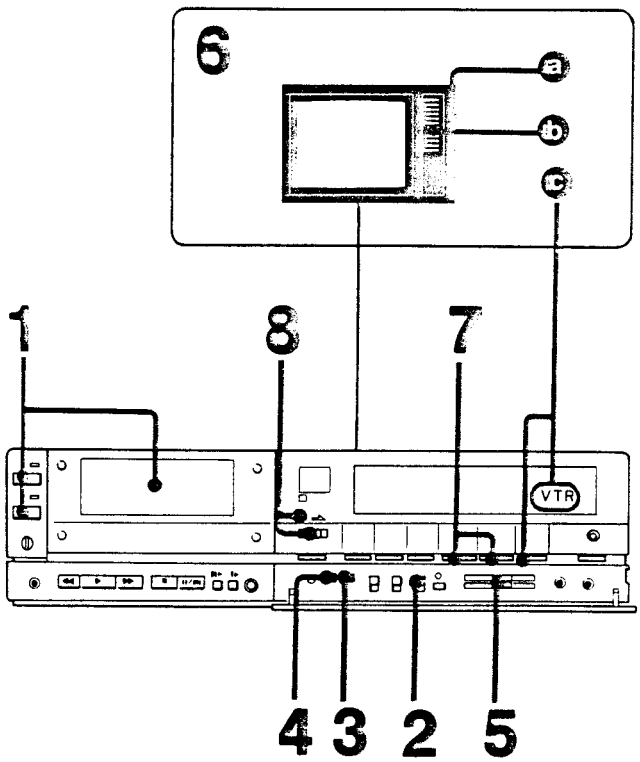
The recording time of any given cassette in the LP mode is 2 times that in the SP mode.
The recording time can be selected by the recording mode selector.

Cassette used	SP mode	LP mode
P5-30	30 min.	1 hr.
P5-60	1 hr.	2 hr.
P5-90	1 hr. 30 min.	3 hr.

The playback speed is automatically set.

1-8. TV PROGRAMME RECORDING

H-1



Caution
Television programmes, films, video tapes and other materials may be copyrighted. Unauthorized recording of such material may be contrary to the provisions of the copyright laws.

OPERATIONS H-1

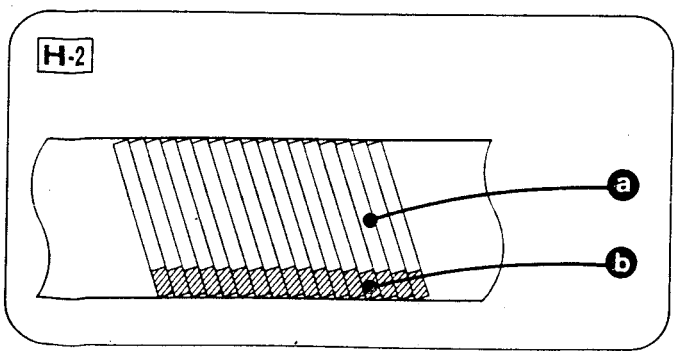
1 Turn on the power and insert the cassette tape. Be sure that the tab on the cassette has been slid inside so that you can record.
2 Set the PCM MODE selector to NORM (normal).
3 Select either SP or LP recording mode with the recording mode selector.
4 Press the INPUT SELECT button to display "TUNER" in the window.
5 Set the upper RECORDING LEVEL control to the "AUTO" position (to the left end).
6 Turn on the TV.
   ⓐ **If your TV does not have audio/video inputs,** select the programme position adjusted for receiving signals from the EV-S600.
   ⓑ **If the AUDIO/VIDEO IN jacks or MULTI IN connector of your TV/monitor is connected to the EURO-CONNECTOR on the EV-S600,** select the correct input to receive audio/video signals.
   ⓒ **If the SCART or PERI-TV of your TV/monitor is connected to EUROCONNECTOR on the EV-S600,** press the TV/VTR button on the EV-S600, so that the VTR indicator is displayed.
7 Select the programme to be recorded with the + or – button.
8 Slide the RECORD switch to the right to start recording.
   The red lamp lights up.
   The recording will go on even if the TV is turned off.

When receiving the stereo broadcast programmes, the STEREO indicator will be displayed in the window.

When receiving the bilingual broadcast programmes, the BILINGUAL indicator will be displayed in the window.
Select the sound to be monitored with the AUDIO MONITOR (MAIN/SUB/MS) selector.

Recording will be made as follows. H-2
ⓐ **Standard track**
Video/audio signals of the TV programme are recorded.
The audio signal is recorded in monaural and the main sound of a bilingual broadcast is recorded.
ⓑ **PCM track**
Audio signals from the connected equipment or the TV are recorded in the stereo PCM mode.

H-2



To stop recording, press the ■ button.

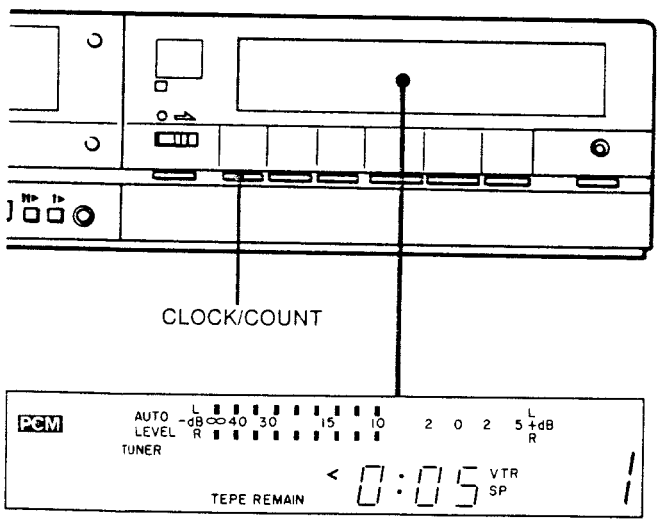
To stop the tape momentarily, press the ❚❚/▶❙◀ button.

To resume recording, press the ❚❚/▶❙◀ button again. If you do not resume recording within about 7 minutes, the pause mode will be automatically released and the unit will enter the stop mode.

When the recording is made to the end of the tape, the tape will be autoamtically rewound to the beginning and the unit will enter the stop mode. The power remains on.

TO CHECK THE AMOUNT OF THE TAPE REMAINING H-3

H-3



Press the CLOCK/COUNT button several times so that the TAPE REMAIN display appears in the window. The remaining recording or playback time of the tape is displayed.

- The remaining time appears only after the "-:--" indication has blinked for a few seconds.
- The < mark appears for less than 1 minute.

Depending on the amount of time remaining on the tape, the TAPE REMAIN display will indicate the amount in different intervals. See the chart below.

Remaining time	Interval
3 to 2 hours	every 15 minutes
2 to 1 hour	every 10 minutes
1 hour to 10 minutes	every 5 minutes
10 to 0 minute	every 1 minute

Notes

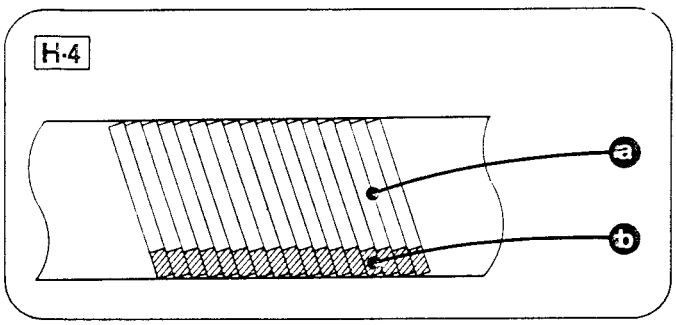
- The remaining time will not be displayed during picture search, double-speed playback or while a blank tape is played.
- The remaining time display during the step-by-step or the slow-speed playback only indicates the time remaining when the playback started.

FOR SMOOTH RECORDING

Recording should always be started from the recording pause mode for smooth transitions between scenes. Proceed as follows if the recording was stopped or if you want to record on a pre-recorded tape from a desired point.

1 Play back the tape to the point from which the new recording is to begin.
2 Press the ❚❚/▶❙◀ button to stop the tape at the desired point.
3 Set the recorder in the recording pause mode by sliding the RECORD switch to the right.
4 Press the ❚❚/▶❙◀ button again when you want to start recording.

H-4

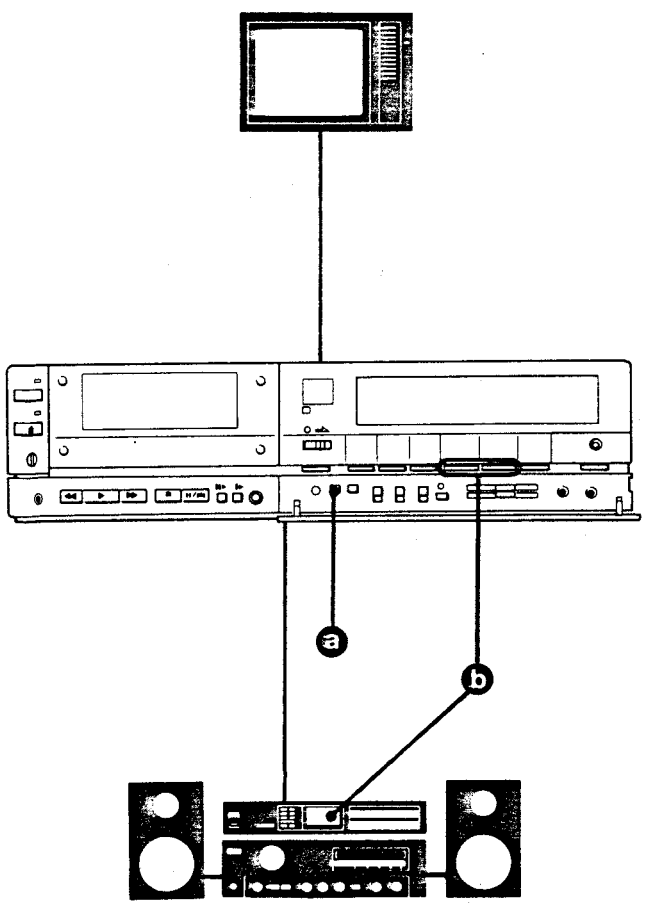


TO VIEW ANOTHER TV PROGRAMME WHILE RECORDING

- **If your TV does not have audio/video inputs,** select the programme you want to view with the TV's programme selector.
- **If the AUDIO/VIDEO IN jacks or MULTI IN connector of your TV is connected to the EUROCONNECTOR on the EV-S600,** select the correct input and programme you want to view with the TV's input and programme selectors.
- **If the SCART or PERI-TV of your TV is connected to the EUROCONNECTOR on the EV-S600,** press the TV/VTR button so that the VTR mark disappears and select the programme you want to view with the TV's programme selector.

TO RECORD A TV PROGRAMME WHILE RECORDING AN FM BROADCAST AT THE SAME TIME...FM SIMULCASTS RECORDING

H-5



Recording will be made as follows. H-4

ⓐ **Standard track**
Video and audio signals of the TV programme will be recorded.

ⓑ **PCM track**
FM broadcast programme from the AUDIO IN jacks will be recorded in the stereo mode.

Over-the-air FM simulcasts

Sometimes a TV station and an FM radio station will broadcast a programme simultaneously so that you can record a TV programme in high-fidelity stereo. The TV programme (video and monaural audio) is recorded normally on the standard track and the stereo audio portion is recorded on the PCM track from your FM tuner.

For details on connection, see page 13.

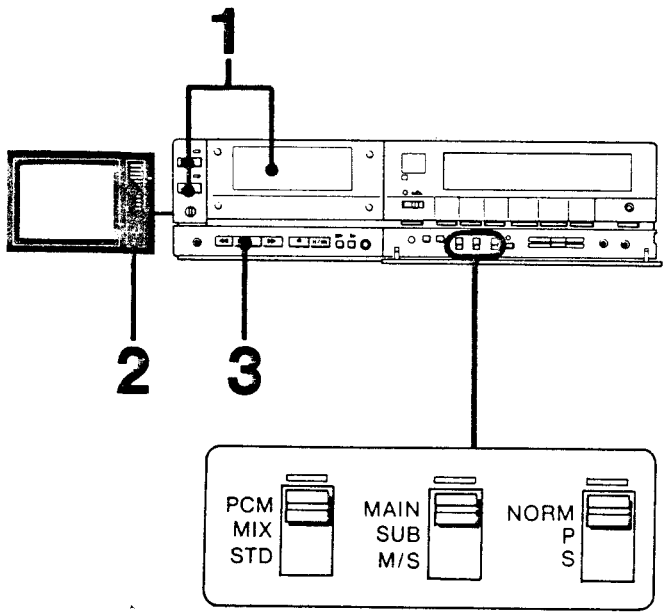
The recording operation is the same as the "TV PROGRAMME RECORDING " on page 17 except for the following two points. H-5

ⓐ **In step 4** of the "TV PROGRAMME RECORDING", select the "SIMUL" display in the window by pressing the INPUT SELECT button.

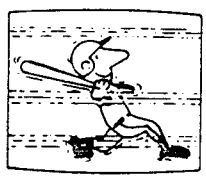
ⓑ **In step 7,** select the programmes to be recorded both on the VTR and the FM tuner.

1-9. PLAYBACK

I-1



I-2



Preparation I-1

Make sure that the AUDIO MONITOR selectors are set to the PCM and MAIN positions and the PCM MODE selector to NORM. This is the most basic settings. For various other settings, see page 22.

1 Turn on the power and insert the cassette.
2 Turn on the TV/monitor.
- **If your TV does not have audio/video inputs,** select the programme position that was adjusted for receiving signals from the EV-S600.
- **If the AUDIO/VIDEO IN jacks or MULTI IN connector of your TV/monitor is connected to the EUROCONNECTOR on the EV-S600,** select the correct input to receive audio/video signals. (When the SCART or PERI-TV of your TV/monitor is connected to the EUROCONNECTOR on the EV-S600, the input signal is selected automatically in setp 3.)

3 Press the ▶ button.

To adjust the picture

Turn the SHARPNESS control (in the tuning compartment) toward the SHARP position for a sharper picture and the SOFT position for a softer picture.

To stop playing

Press the ■ button.

Still picture

Press the II/▶◀ button during playback. The picture may have streaks and the sound will be muted.

To resume normal playback press the II/▶◀ button again.
If you do not release the still picture mode within about 7 minutes, it will be released automatically and playback will resume.

If the still picture seems to shake

Turn the STILL ADJ control (in the tuning compartment) clockwise or counterclockwise using the supplied screwdriver until the picture stabilizes.

Step-by-step playback

In the still picture mode, press the II▶ button. Just tap the button to advance the picture by one frame. Keep the II▶ button pressed to advance the picture frame by frame continuously.
During step-by-step playback, the picture may have streaks and the sound will be muted.

To resume normal playback, press the II/▶◀ button again.

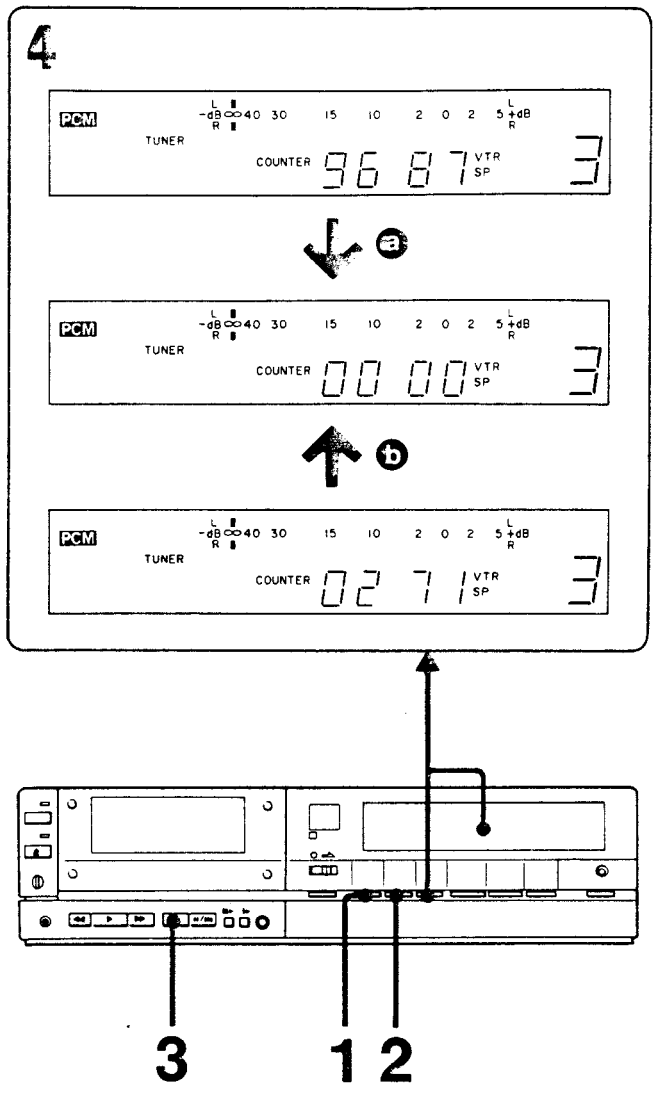
Slow-speed playback
...to view the picture in 1/5-speed

In still picture mode, press the I▶ button.
During slow-speed playback, the picture may have streaks and the sound will be muted.

To resume normal playback, press the I▶ button again and then the II/▶◀ button.

FF or REW...to advance or to rewind the tape rapidly

Press either button in the stop mode; ◀◀ for rewinding and ▶▶ for advancing the tape rapidly.
To stop the tape, press the ■ button.



Picture search...viewing the picture at a fast speed to find a particular scene

Keep the ◀◀ or ▶▶ button pressed during playback: ◀◀ for reverse high-speed playback and ▶▶ for forward high-speed playback.

During searching a particular scene, streaks will appear and the sound will be muted. [I-2]

When you release the ◀◀ or ▶▶ button, normal playback will resume.

Notes

- The picture may be distorted in step-by-step playback, slow-speed playback and picture search modes.
- When a tape recorded in SP mode is played back in still picture or picture search mode, the picture may appear in black and white or shake depending on the TV being used.
- In picture search mode, streaks appear wider with a tape recorded in SP mode than that recorded in LP mode.
- If the picture is not displayed and/or the sound is not heard or heard only intermittantly when a tape which has been recorded on a video camera recorder or a video cassette recorder without the PCM function is played back on this unit, set the AUDIO MONITOR selector on this unit to STD.

Double-speed playback

During playback, press the x2 (double-speed) button.
The sound will be muted.
To resume normal playback, press the **x2** button again.

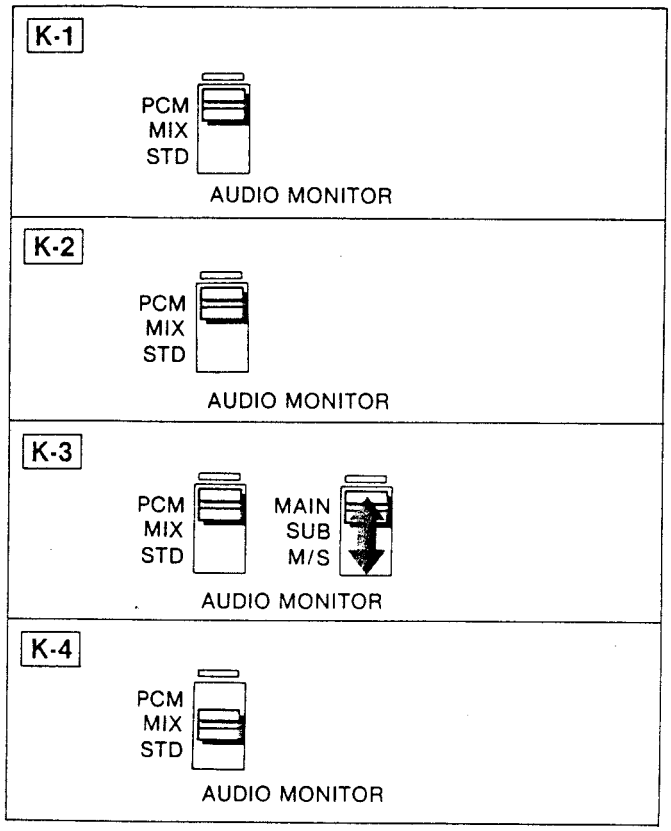
Auto-play...to play back a tape from the beginning of the tape after rewinding

Press ▶ while holding ◀◀ depressed. After the tape is completely rewound, it will automatically be played back.

Tape return...To stop the tape at the "0000" point after it has been rewound [J]

1 Press the CLOCK/COUNT button so that the COUNTER is displayed in the display window.
2 During recording or playback, set the counter to "0000" by pressing the COUNT RESET button at the point you wish to review later.
3 When the recording, playback or rewinding is finished, press the ■ button to stop the tape.
4 Press the TAPE RETURN button. The tape is then advanced or rewound and stops near the "0000" point.

ⓐ Tape is advanced forward.
ⓑ Tape is rewound.



PLAYBACK OF STANDARD OR PCM SOUND

When the AUDIO MONITOR selectors are set to the PCM and the MAIN positions
When you play back a tape with nothing recorded on the PCM track, you automatically hear the sound recorded on the standard track. When you playback a tape recorded with bilingual sound, you automatically hear the main sound.

Select the appropriate position of each AUDIO MONITOR selector according to what you want to monitor.
(Refer to the notes about the standard and PCM tracks on page 17.)

For monitoring a tape recorded in the stereo mode (PCM track playback) K-1

Set the left AUDIO MONITOR selector to PCM.

For monitoring a tape recorded in the FM simulcast mode (PCM track playback) K-2

Set the left AUDIO MONITOR selector to PCM.

For monitoring a tape recorded in the bilingual mode (PCM track playback) K-3

Set the left AUDIO MONITOR selector to PCM and the right AUDIO MONITOR selector to the position of the sound which you want to hear.

For monitoring an audio dubbed tape (PCM and standard tracks playback) K-4

Set the left AUDIO MONITOR selector to MIX.

USE OF THE TAPE COUNTER

When the unit is turned on, press the CLOCK/COUNT button to display the COUNTER.

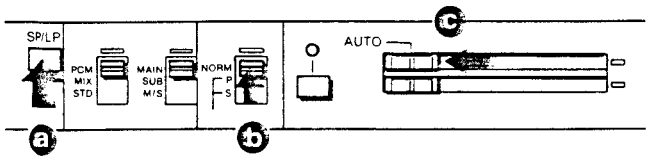
Before starting recording or playback, press the COUNT RESET button to set the counter to "0000".
Note the counter reading at the desired point so that you can easily find that point later by referring to the counter.

Automatic playback or stop is possible at the tape counter "0000" position after rewinding. See "Tape return" on page 21.

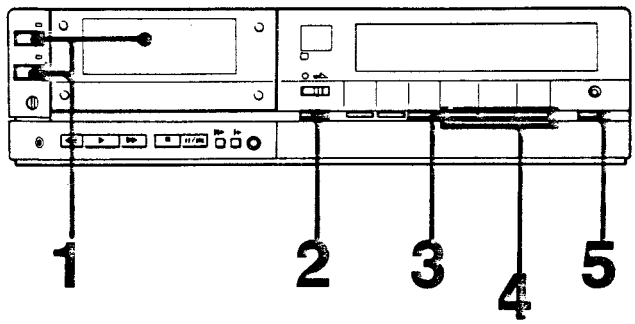
Notes
- The counter reading will be retained in the memory even after the power is turned off and the display reverts to the clock, as long as a cassette is in the cassette compartment.
- The counter reading is automatiacally reset to zero when a cassette is inserted.

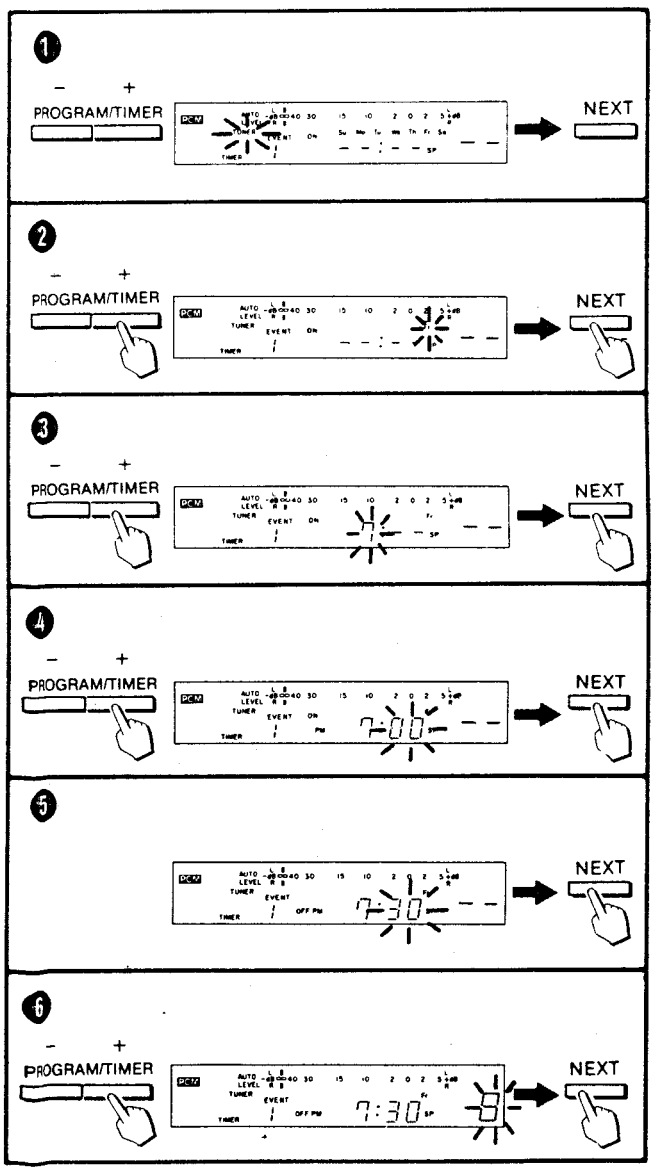
1-10. TIMER-ACTIVATED RECORDING

N-1

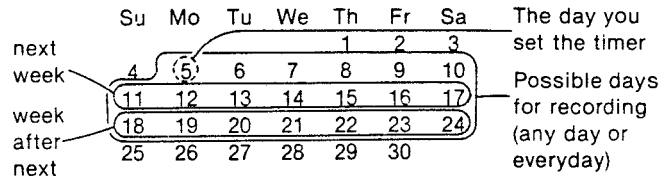


N-2





The built-in timer permits automatic recording of up to six preselected TV programmes, even when you are not at home. The timer can be set to operate any time until the 3rd or, if the day of presetting is a Saturday, the 2nd Saturday from the day you preset the programmes.



Notes

- In timer-activated recording, the recording mode (SP or LP) cannot be selected every time you make a programme setting.
  Once the recording mode, SP or LP has been selected, all programmes will be recorded in that mode. Note that the recording mode selector (SP/LP) still seems to be active as the SP or LP indicators can be changed in the display window; however, the selector is not operative.
- If you change the position of the PCM MODE selector after the timer setting has been made, the setting will be completely cancelled.

Preparation

- Make sure the clock is set to the correct current time.
- Check that the following controls and switches are set correctly. N-1
  - ⓐ Select the recording mode with the recording mode selector
  - ⓑ Set the MULTI PCM selector to the NORM position.
  - ⓒ Set the upper RECORDING LEVEL control to the AUTO position.

Operation N-2

1 Turn on the power and insert a cassette.
2 Press the SELECT button to switch the functions of the buttons below the display window.
3 Press the TIMER SET button.
  If 6 programme settings have already been made, the display does not turn into that of the timer.
4 Set the appropriate day, time, and channel by pressing the +/− button and then the NEXT button.
  Every time you press NEXT, the item to be preset next flashes. Do not forget to press NEXT, otherwise the presetting process will not advance to the next step.

Suppose you want to make a recording of programme 8 from AM 7:00 to AM 7:30 on Friday.

Turn-on time setting

❶ Make sure that the "TUNER" indicator flashes in the display window.
If you have "LINE" or "SIMUL" in stead of "TUNER", press the +/– buttons to get "TUNER".
❷ Set the day.
❸ Set the hour.
❹ Set the minutes.

Turn-off time setting

❺ Set the turn-off time (hour and minutes) just as you have set the turn-on time.
❻ Set the programme number.

The memorized turn-on and turn-off times will be displayed successively and then the current time (or the display before the TIMER SET button is pressed) will appear.

To preset more programmes, press the TIMER SET button again to display another empty programme position. Repeat steps ❶ to ❻.

5 Press the TIMER REC ON/OFF button.
The unit will turn off and the recorder will be in the standby mode: The "TIMER REC" indicator appears in the window and only the TIMER CHECK button lights up.

Notes

- Recording will start automatically at the preset turn-on time and will stop at the preset turn-off time. The setting of the recorded programme, except settings for everyday, will be erased and the programme positions preset in the timer will advance one by one.
- Be sure to press the TIMER REC ON/OFF button after presetting, otherwise the timer recording will not be made.
- Make sure the cassette tape is long enough to record all the programmes set. When the tape reaches the end during the timer recording, the recording stops and the recorder will be turned off automatically. In this case, the tape will not be rewound automatically to the beginning.
- ONCE THE TIMER REC INDICATOR HAS LIT UP, NO FUNCTION OF THE RECORDER CAN BE ACTIVATED, except for the TIMER REC ON/OFF button and the TIMER CHECK button. This is to safeguard the timer recordings.

If you select an incorrect digit for the turn-on/off time setting, press the +/– buttons at the same time.
The programme which is currently being set will be cancelled but the other programmes previously set will remain.

BEFORE THE TIMER-ACTIVATED RECORDING STARTS

To release a timer-activated recording

To release a timer or quick timer (see page 26) setting to operate the unit manually for the usual operations, press TIMER REC ON/OFF, so that the TIMER REC indicator in the display window disappears. Then, turn on the power and operate the unit. But never reset the PCM MODE selector, so memories will be erased.

When you press TIMER REC ON/OFF again, the timer recordings will be made as preset.

To check the timer settings

Press TIMER CHECK. Every time you press this button, each preset time will be displayed successively. If you keep TIMER CHECK depressed, each preset time of event 1 through 6 will be displayed in sequence.
If you press this button while viewing a TV programme, the timer preset channel will appear one by one on the screen.

To change the timer settings

1 Press TIMER REC ON/OFF so that the TIMER REC indicator disappears.
2 Turn on the power. Press SELECT so that the TIMER CHECK indicator appears.
3 Tap TIMER CHECK until the setting to be changed appears in the display window.
4 Press TIMER SET.
5 Tap NEXT until the item to be changed blinks.
6 Change the setting with the +/– buttons.
7 Press NEXT until the current time appears.

The succeeding programme numbers of other preset programmes will advance one by one and the programme which is changed here will shift to the ultimate position.

To cancel a timer setting

1 Press TIMER REC ON/OFF so that the TIMER REC indicator disappears.
2 Turn on the power. Press SELECT to display the TIMER CHECK indicator.
3 Press TIMER CHECK to select the turn-on or -off time of the programme to be erased.
4 Press +/– simultaneously. The timer setting is cancelled. The succeeding programme numbers will shift automatically by the number of cancelled programmes.
Press TIMER REC ON/OFF again to reactivate the function for other preset programmes.

DURING TIMER-ACTIVATED RECORDING

To interrupt a recording

Press the TIMER REC ON/OFF button.
The TIMER REC indicator will disappear, the recording will be interrupted and the unit will be turned off.

VARIOUS FORMS OF TIMER-ACTIVATED RECORDING

To record a programme at the same time everyday
When you set the day of the week, display all the indicators from Sunday to Saturday.
Recording will continue to the end of the tape.
If you do not want to record on a particular day, press TIMER REC ON/OFF to cancel the setting. To reactivate the setting, press TIMER REC again.

To record using the entire tape, set the turn-off time to a time after the tape will reach the end or to exactly the same time as the turn-on time. Recording will continue to the end of the tape, after which recorder will be turned off.

To record simultaneously a TV programme and an FM radio programme, make the connections by referring to the illustration of "CONNECTING AN AUDIO SYSTEM" on page 13.

ⓐ Select "SIMUL" with the +/– button in step **4-❶** of the timer-activated setting (See page 23.) The other operations are the same.
ⓑ Set the tuner so that the desired station is received when the recorder is turned on.

NOTES ON TIMER RECORDING

Problems when TIMER REC ON/OFF is pressed after the settings are made

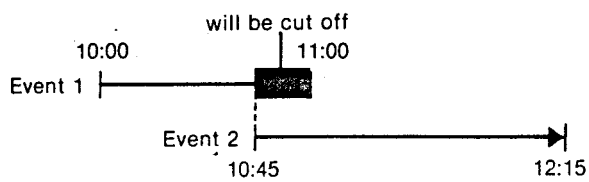
The TIMER REC indicator does not light up and the unit is still turned on.

- No cassette is inserted.
  Insert a cassette and press TIMER REC ON/OFF again.

The cassette is ejected.

- The tape is at its end.
  Rewind it and press TIMER REC ON/OFF again.
- The tab on the cassette is set to the safety position.
  Slide the tab in or use another cassette. Then, press TIMER REC ON/OFF again.

When the presettings of your timer-activated recordings overlap
Even if there is an overlap, a recording will be made; however

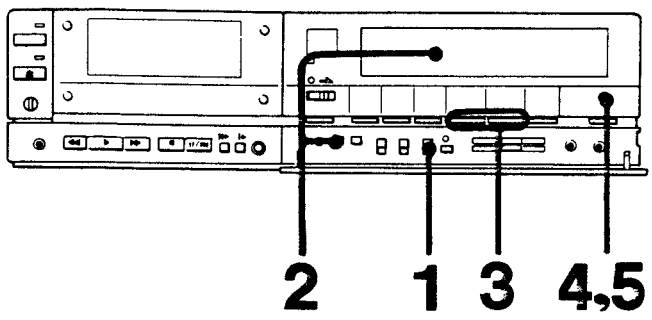


the recording of programme 2 will begin before programme 1 is finished.
If the turn-on time of the 2 events is the same, recording of event 2 will be made.

When a power interruption occurs
If the clock shows "Su 0:00" and blinks, the power has been interrupted for more than about 10 seconds and all the timer settings have been erased. Reset the clock and the timer settings.
If the power has been interrupted for less than about 10 seconds, the timer programmes are retained in the memory and the on-going timer recording will resume when the power is resupplied. However, the clock should be reset as it is slow by the duration of the power interruption.

1-11. QUICK TIMER RECORDING

O



Use this function to begin recording a TV programme or audio signals immediately and to turn off the power automatically.
You can start a timer recording simply by pressing the QUICK TIMER button and set the recording duration, as well for up to 5 hours in 30 minutes intervals. This button is functional also during a regular non-timer recording so that the recording will stop and the power turns off after the preset duration.

TO USE QUICK TIMER FROM THE TAPE STOP MODE

Preparation

- Turn on the unit and insert a cassette.
- Select the recording mode SP or LP.

Operation

1 Select the PCM recording mode.
For TV programme recording: set to NORM.
For MULTI PCM recording: set to P (Parallel) or to S (Series).

2 Confirm input signals.
For TV programme recording: "TUNER" must be displayed.
For MULTI PCM recording: "AUDIO" must be displayed.
For FM simulcasts recording: "SIMUL" must be displayed.

3 Select the desired track for MULTI PCM recording with the +/– buttons.

4 Press QUICK TIMER so that "0:00" and "TIMER" appear in the display window.
For TV programme recording: programme number flashes.
For MULTI PCM recording: ▶ mark flashes.
You can change the selected programme number or the track while these indicators are flashing. (You have about 20 seconds.)

5 Press QUICK TIMER again to select the length of recording time.
THE TIMER REC indicator appears and the recording starts immediately.

The duration indication changes as follows:

0:00 → 0:30 → 1:00 → 1:30..... → 5:00
(30 minutes) (one hour)

TO USE QUICK TIMER WHILE RECORDING

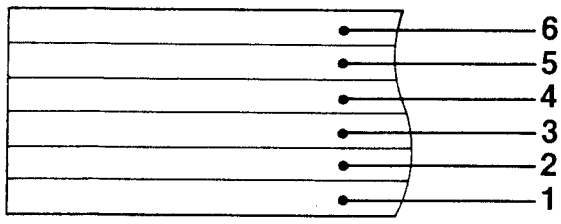
1 Press QUICK TIMER. The TIMER REC indicator appears.
2 Press QUICK TIMER again to select the length of recording time.
Recording will continue within the selected time.

Notes

- Normally, the quick timer recording can be made by simply pressing the QUICK TIMER button even if the unit is turned off.
However, in the following conditions, the QUICK TIMER recording will not start:
When no cassette is inserted.
When the tab on the casette is set to the safety position.
When the tape is at its end.
In these cases, only the power of the unit will be turned on.
- **Once the quick timer recording has started:**
No function button except for the following will activate.
QUICK TIMER...to change the duration of the recording
II/►►...to stop quick timer recording momentarily
TIMER REC ON/OFF...to interrupt quick timer recording
- **When a power interruption occurs during quick timer recording:**
The recording stops and the power will be turned off. It will start again if the power is supplied within about 10 seconds.
- **When the tape comes to an end before the preset turn-off time:**
The recording stops and the recorder will be automatically turned off. The tape will not be rewound.
- **The QUICK TIMER button cannot be used when the "TIMER REC" is displayed.**
To use the QUICK TIMER, first press the TIMER REC ON/OFF button to turn off the TIMER REC indication.

1-12. PCM AUDIO RECORDING AND PLAYBACK

L-1

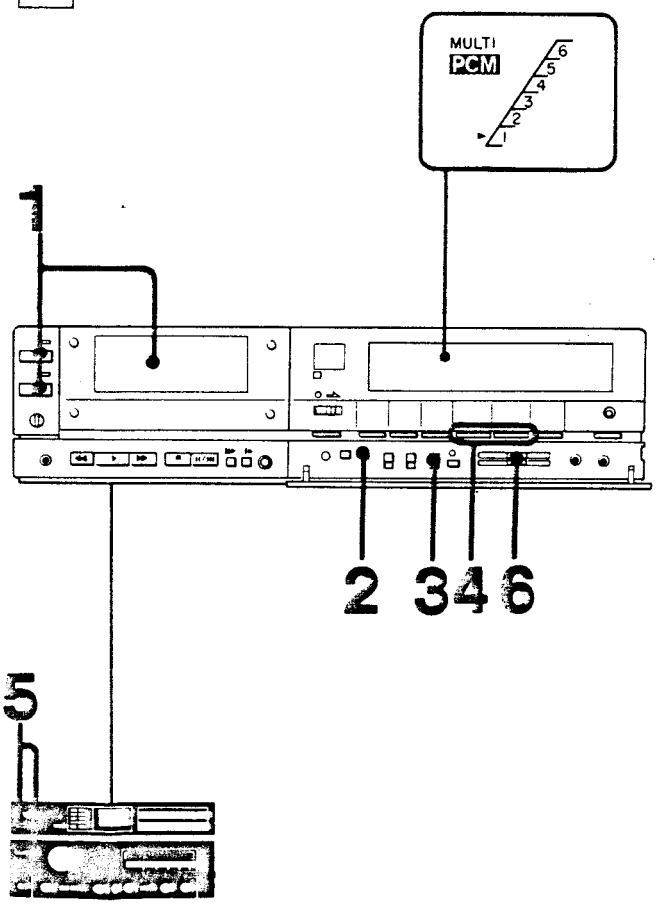


L-1

Normally, both the video and audio signals can be recorded on your video tape.
However, you can record up to 6 tracks of only the audio signals in the PCM digital mode, using the full width of the tape.
This called MULTI PCM recording.

MULTI PCM recording is made up to 3 hours for each track.
The sound is recorded in stereo PCM mode.

L-2



RECORDING L-2

1 Turn on the recorder and insert a cassette tape.
2 Select the recording mode, SP or LP.
3 Set the PCM mode selector to P (Parallel) or to S (Series).
4 Select the track on which to record by pressing the +/– button.
5 Turn on the power of the connected equipment and select the audio source to be recorded.
6 Adjust the RECORDING LEVEL controls. Verify the adjustment with the peak level meter of the recorder.

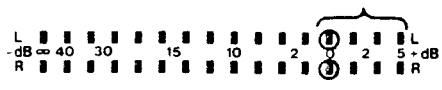
RECORDING LEVEL ADJUSTMENT L-3

Manual adjustment
Referring the peak level meter, manually adjust the recording level. Set the RECORDING LEVEL control so that the first red LED lights up only at the highest signal level.

Select the best recording level for each source as follows.

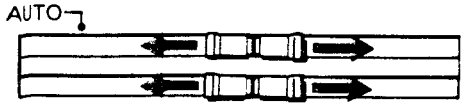
When recording conversation	.....Set so that the first red LED lights up continuously.
When recording from a record or from an FM tuner.	.....Set so that the first red LED lights up occasionally.
When recording from a compact disc	.....Set so that the first red LED lights up sometimes.

L-3

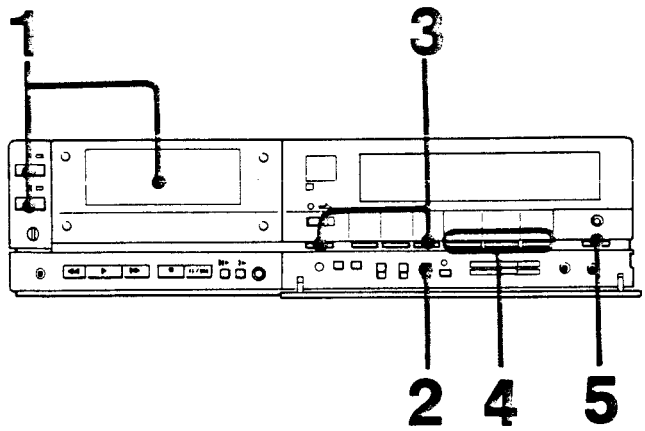


Automatic adjustment
If the upper control (L) is set at the "AUTO" (left end) position, the recording level for both the left and right channels can be adjusted automatically. The "AUTO LEVEL" indicator will be displayed in the window.

During playback, you can read the recorded level on the peak level meter.



M-1



TIMER RECORDING

You can preset the recording of up to 6 radio programmes in the PCM mode.

Notes

In parallel recording

- If a programme is already preset on a track, you cannot preset another programme on the same track.
- For the first timer-recording programme, the tape will not be rewound automatically to the beginning. The recording will start from the current position of the tape.
- If the next programme starts before the tape has been rewound completely, the beginning of the programme will not be recorded.

In series recording

- After all the preset programmes are recorded, the tape will no be rewound automatically to its beginning.

Check before setting the timer M-1

- Is the clock set to the correct day and time?
- Is the tuner turned on?
- Is the recording level set to "AUTO"?
- Is the recording mode SP or LP selected?

Operation

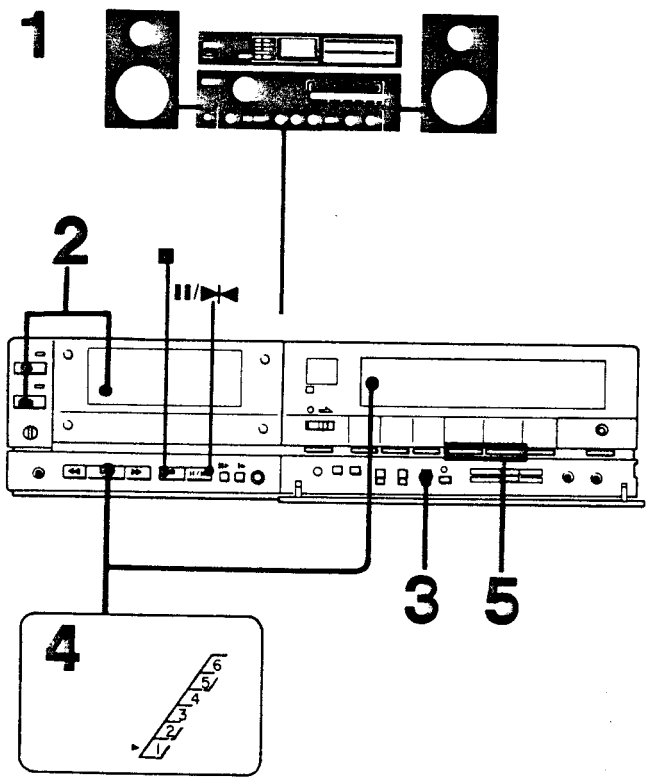
1 Turn on the recorder and insert a cassette.
2 Select the timer recording mode P(parallel) or S (series). See page 30.
3 Press the SELECT button to change the functions of buttons and press the TIMER SET button.
4 Press the +/– buttons and the NEXT button to set the following items:
  —audio track
  —day of the week
  —recording starting time
  —ending time
  (Refer to step 4 of the Timer-activated recording on page 23.)

To make other settings, repeat steps **2** through **4** (in series recordidng, the audio track cannot be selected every time you make a programme setting.)
5 Press the TIMER REC ON/OFF button.

Note

If you change the position of the PCM MODE selector after having set the timer, all the settings will be cancelled.

M-2



PLAYBACK M-2

1 Turn on the connected equipment and select the appropriate input signal to hear the sound with the stereo speaker system.
2 Turn on the recorder and insert a cassette.
3 Set the PCM MODE selector.
To monitor a MULTI PCM tape recorded on this unit, set to P. If there is no sound when a MULTI PCM tape recorded on another recorder is played back, set to S.
4 Press the ▶ button.
The ▶ mark indicates the selected track to be monitored.
5 Select the track to be monitored by pressing the +/– buttons.

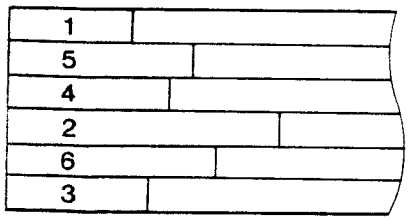
The bar in the right side of the track indication
When the PCM MODE selector is set to P, the bar shows the track on which recording has been made.
When the PCM MODE selector is set to S, all bars light up even if nothing has been recorded on the tracks.

To stop the tape momentarily, press the II/▶◀ button. Press again to resume normal playback.

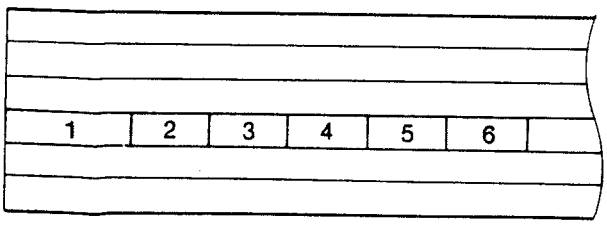
To stop the tape, press the ■ button.

Note
While playback, we recommend that you set the RECORDING LEVEL controls to the "0" position. Because the noise which appears when you stop the tape may damage your speakers.

M-3



M-4



Parallel recording.....Stereo recording of one programme on each track M-3
- After a programme is recorded on one track, then, another recording will begin on another track from the beginning of the tape.
- You can select the track in any order for any programme.

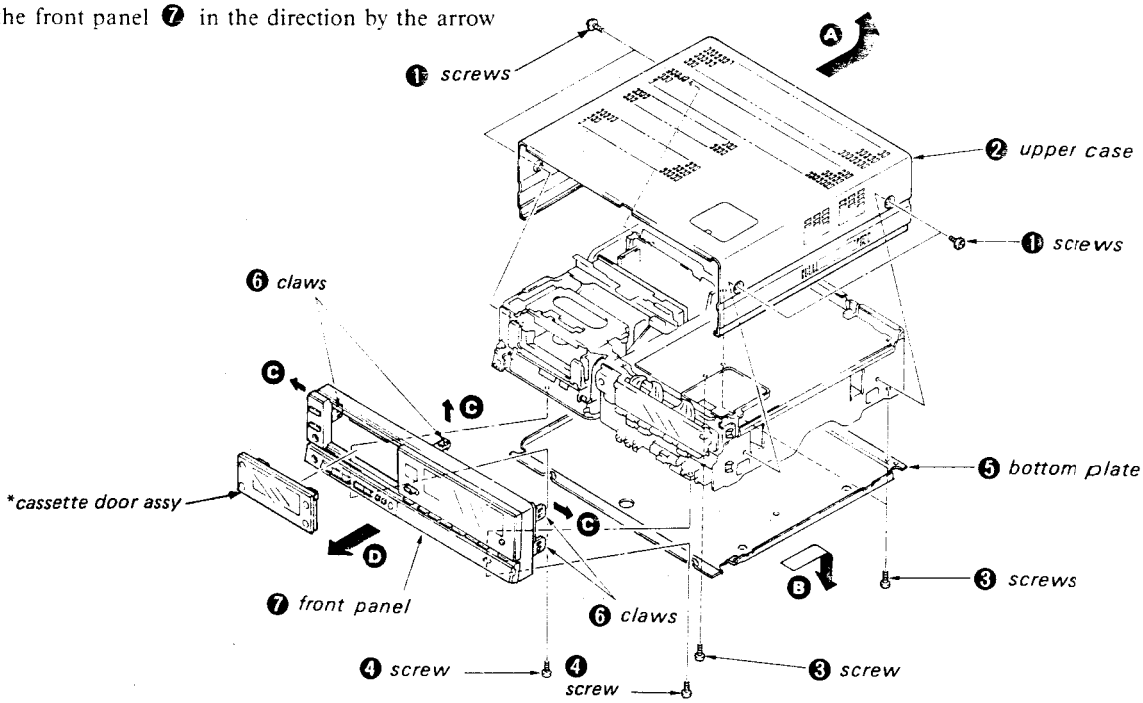
Series recording.....Stereo recording in series on only a single track M-4
- After one programme is recorded, another one is recorded successively on the same track.

SECTION 2
DISASSEMBLY

2-1. REMOVAL OF THE FRONT PANEL AND CABINET CASE

1) Remove the four screws ❶ and remove the upper case ❷ in the direction shown by the arrow Ⓐ.
2) Remove the three screws ❸ and loosen the two screws ❹.
3) Remove the bottom plate ❺ in the direction shown by the arrow Ⓑ.
4) Remove the two screws ❹ and remove the four claws ❻ the direction shown by the arrow Ⓒ.
5) Remove the front panel ❼ in the direction by the arrow Ⓓ.

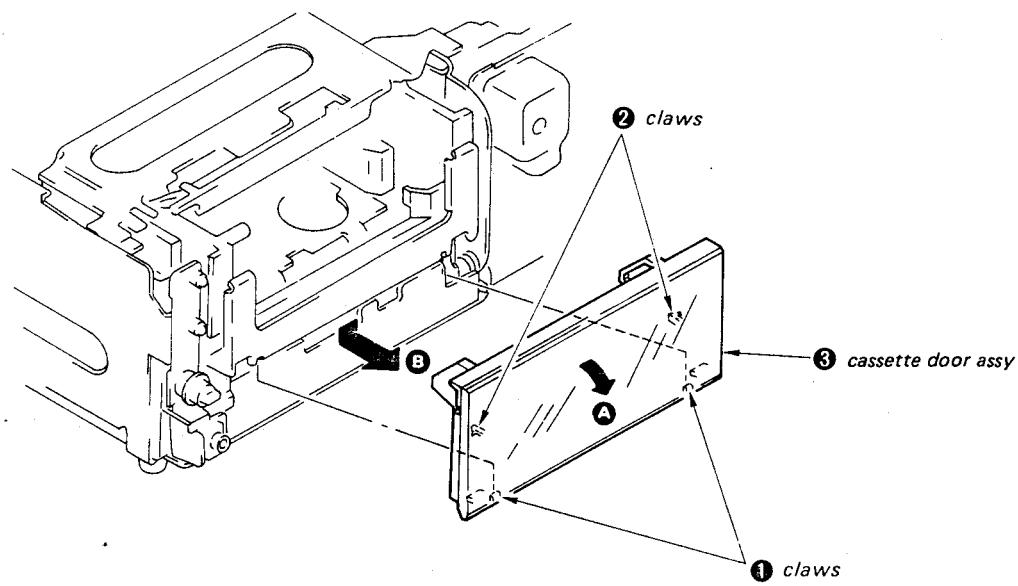
* When removing the front panel, remove the cassette door assembly beforehand.



2-2. REMOVAL OF THE CASSETTE DOOR ASSEMBLY

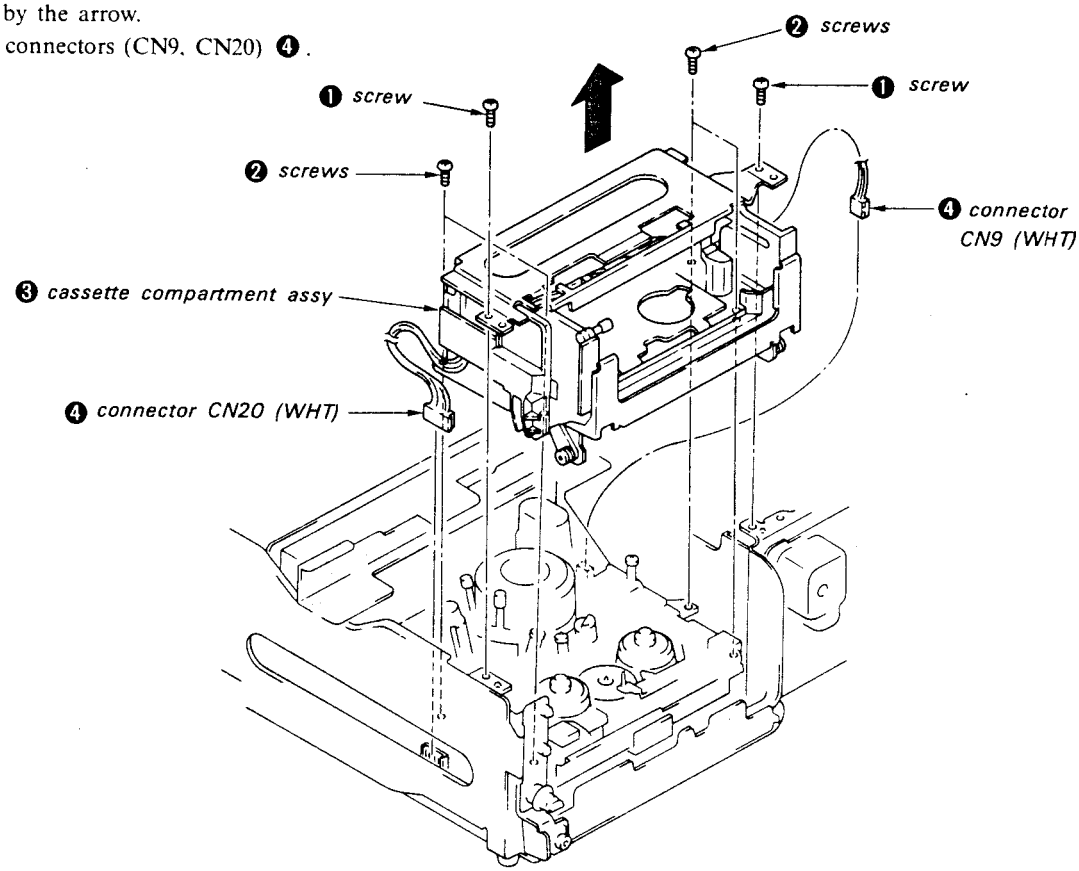
1) Remove the two claws ❶ in the direction shown by the arrow Ⓐ.
2) Remove the two claws ❷ and remove the cassette door assembly ❸ in the direction by the arrow Ⓑ.

Note: When attaching teh cassette door assembly ❸, set the two claws ❷ on the frame first.



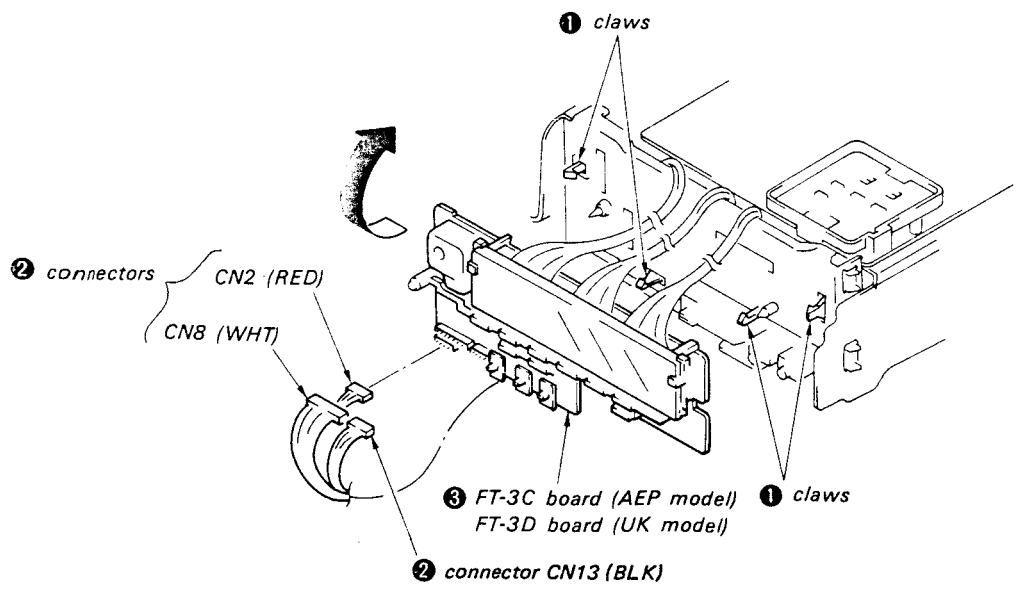
2-3. REMOVAL OF THE CASSETTE COMPARTMENT ASSEMBLY

1) Remove the two screws ❶.
2) Remove the four screws ❷.
3) Remove the cassette compartment assembly ❸ in the direction shown by the arrow.
4) Remove the two connectors (CN9, CN20) ❹.



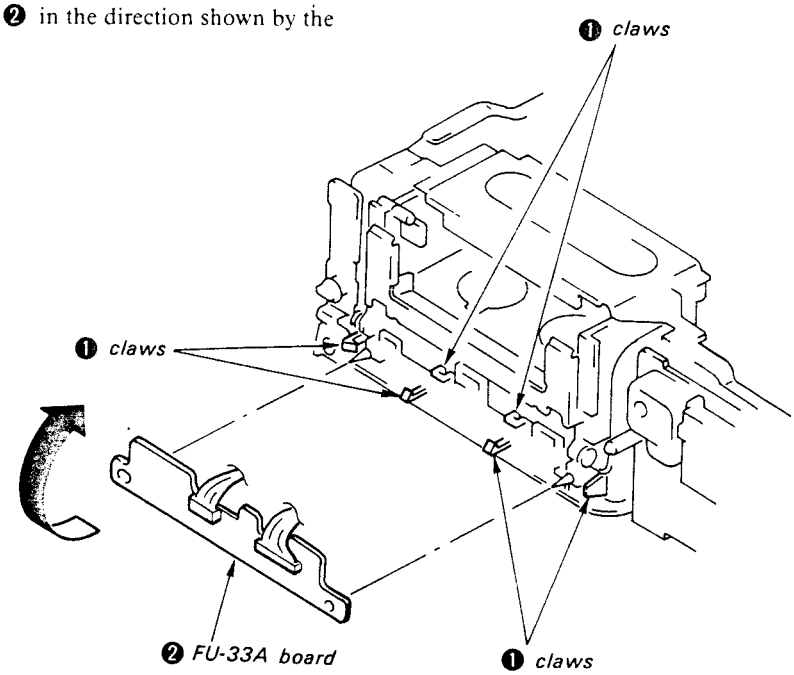
2-4. REMOVAL OF THE FT-3C BOARD (AEP MODEL), FT-3D BOARD (UK MODEL)

1) Disengage the four claws ❶.
2) Remove the three connectors (CN2, CN8, CN13) ❷.
3) Open the FT-3C board (AEP model), FT-3D board (UK model) ❸ in the direction shown by the arrow.



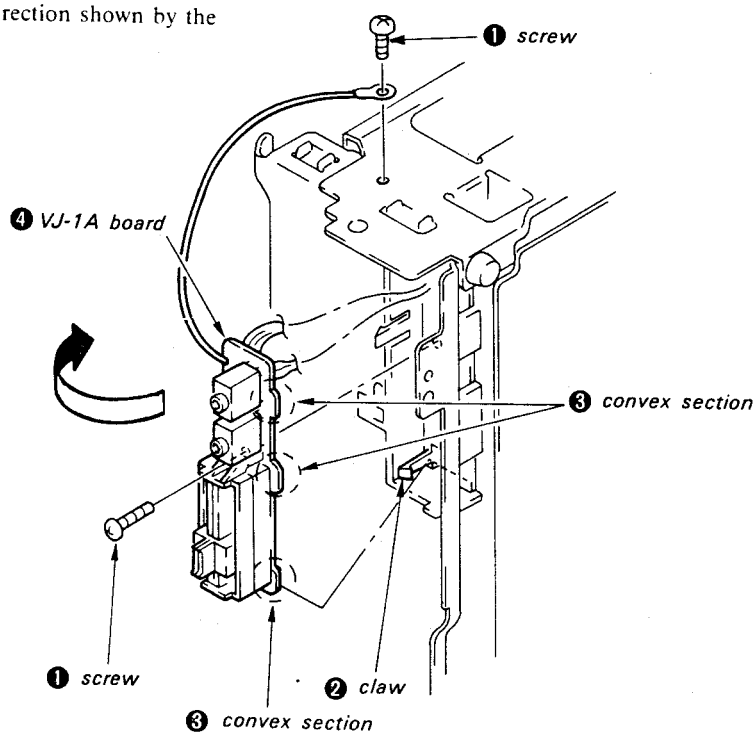
2-5. REMOVAL OF THE FU-33A BOARD

1) Disengage the six claws ❶ from the FU-33A board ❷.
2) Open the FU-33A board ❷ in the direction shown by the arrow.



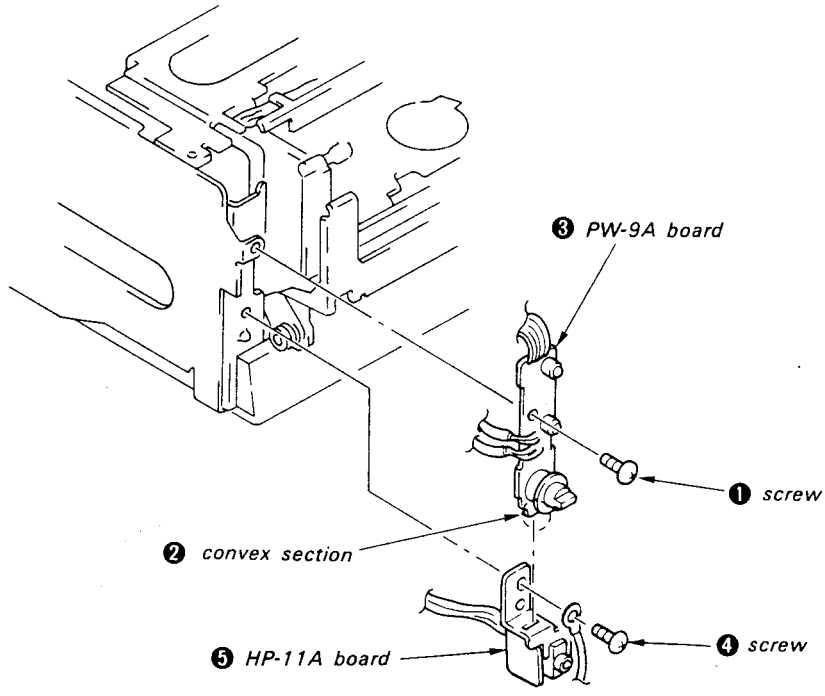
2-6. REMOVAL OF THE VJ-1A BOARD

1) Refer to the "REMOVAL OF THE FT-3C BOARD (AEP MODEL), FT-3D BOARD (UK MODEL)" then remove the FT-3C board (AEP model), FT-3D board (UK model).
2) Remove the two screws ❶.
3) Remove the claw ❷.
4) Unfasten the three convex sections ❸ and then, remove the VJ-1A board ❹ from the frame.
5) Open the VJ-1A board ❹ in the direction shown by the arrow.



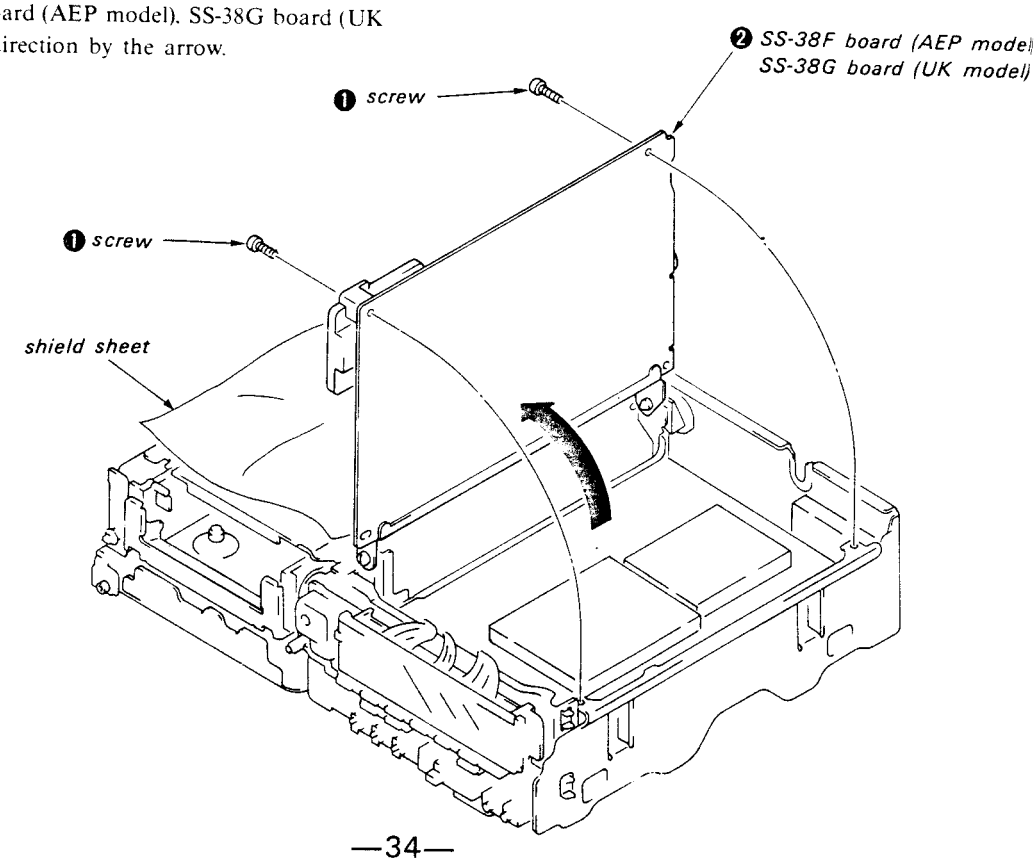
2-7. REMOVAL OF THE PW-9A, HP-11A BOARDS

1) Remove the screw ❶ .
2) Pull out the convex section ❷ and remove the PW-9A board ❸ .
3) Remove the screw ❹ and remove the HP-11A board ❺ .



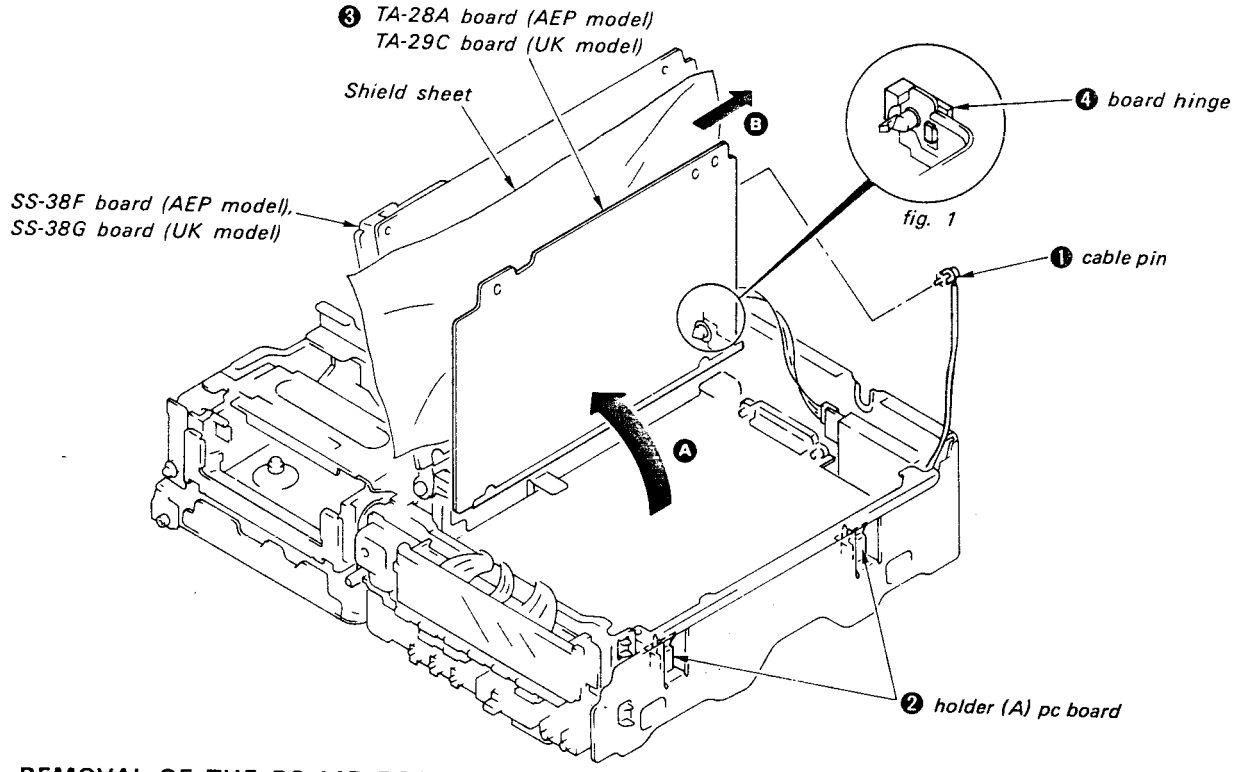
2-8. REMOVAL OF THE SS-38F BOARD (AEP MODEL), SS-38G BOARD (UK MODEL)

1) Remove the two screws ❶.
2) Open the SS-38F board (AEP model), SS-38G board (UK model) ❷ in the direction by the arrow.



2-9. REMOVAL OF THE TA-28A BOARD (AEP MODEL), TA-29C BOARD (UK MODEL)

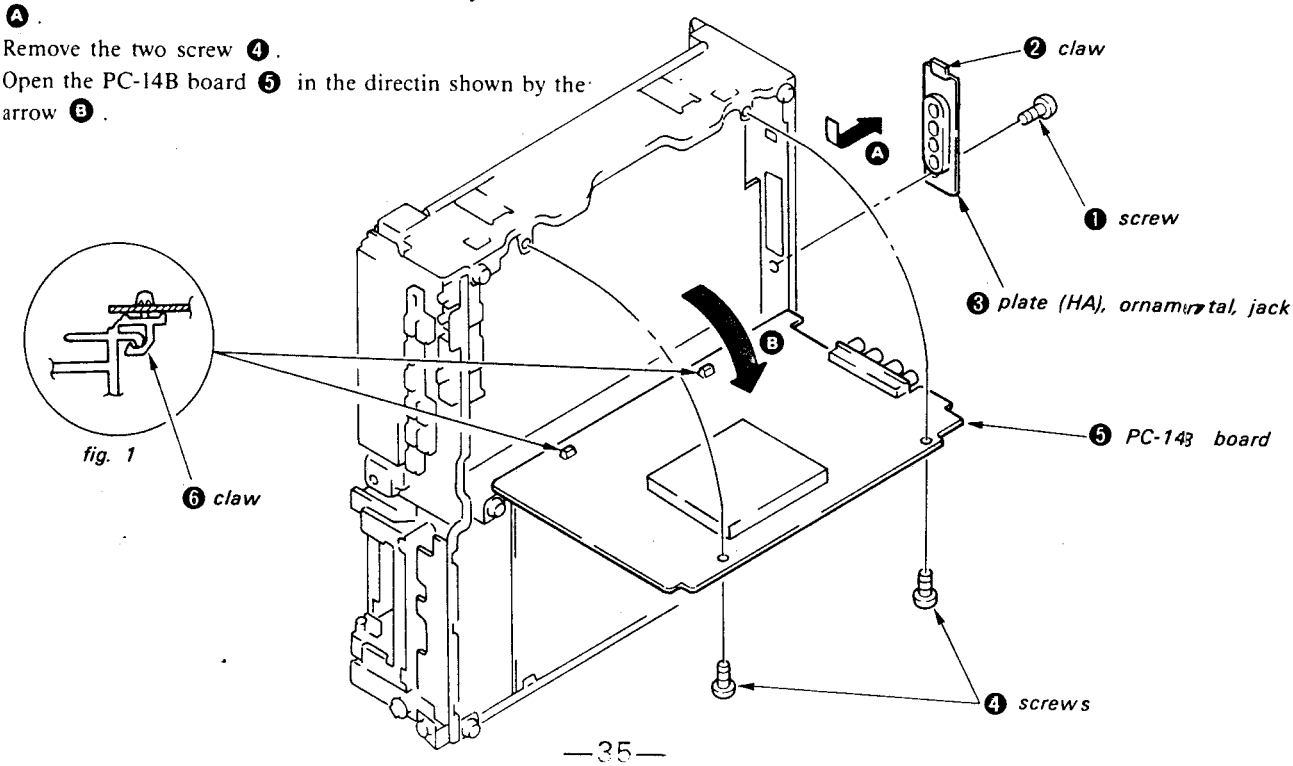
1) Remove the connector pin ❶ .
2) Remove the two holder (A) pc board ❷ .
3) Open the TA-28A board (AEP model), TA-29C board (UK model) ❸ in the direction shown by the arrow Ⓐ .
4) Slide the TA-28A board (AEP model), TA-29C board (UK model) ❸ in the direction shown by the arrow Ⓑ and secure it to the board hinge ❹ as shown in Fig. 1.



2-10. REMOVAL OF THE PC-14B BOARD

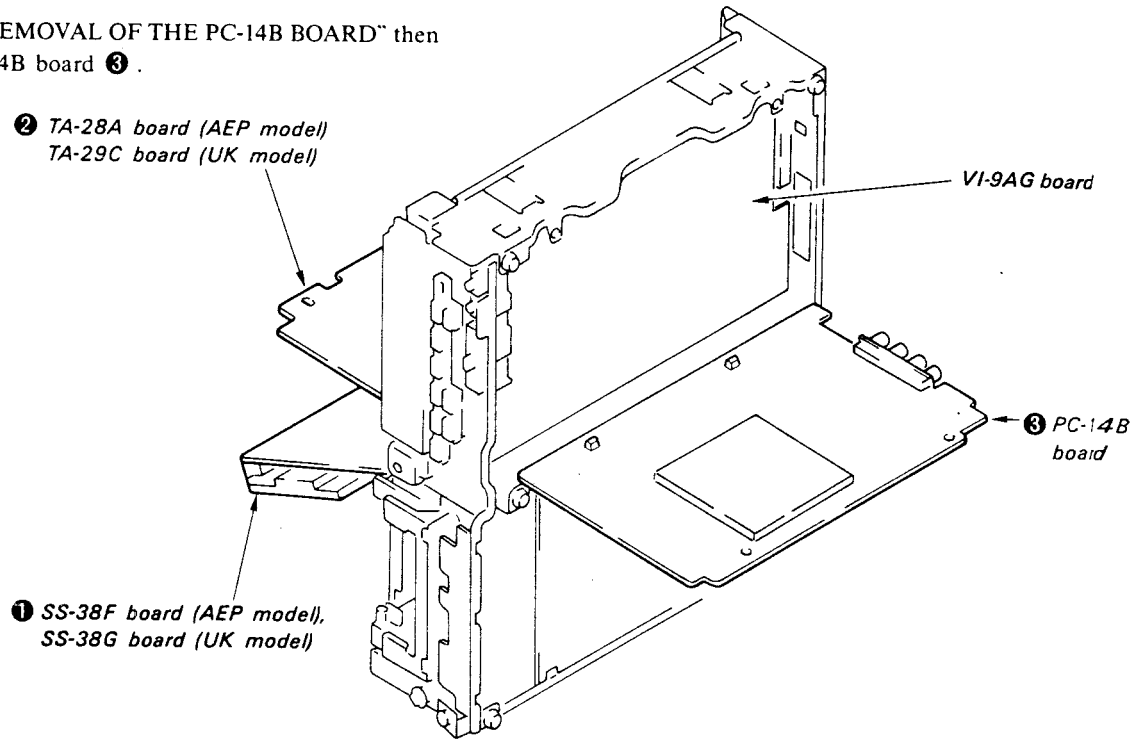
1) Remove the screw ❶ .
2) Exercise caution at the claw ❷ and remove the plate (HA), ornamental, jack ❸ in the direction shown by the arrow Ⓐ .
3) Remove the two screw ❹ .
4) Open the PC-14B board ❺ in the directin shown by the arrow Ⓑ .

Note: When closing the PC-14B board ❺, as the PCB holder has been locked as shown in Fig. 1, unfasten the two claws ❻ at first, and then close the board.



2-11. REMOVAL OF THE VI-9AG BOARD

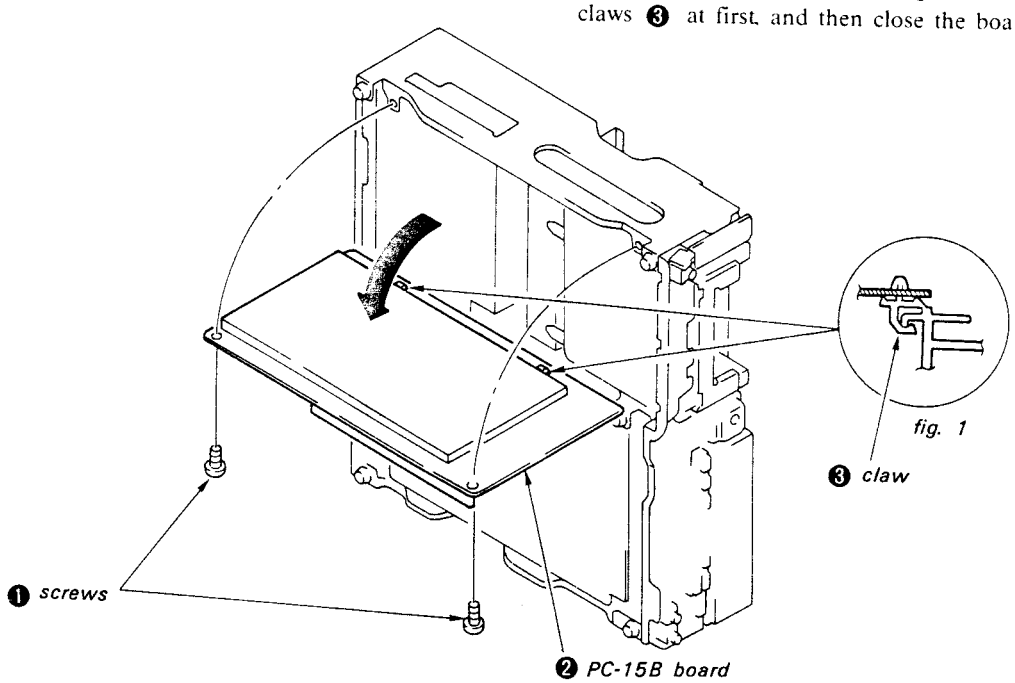
1) Refer to the "REMOVAL OF THE SS-38F BOARD (AEP MODEL), SS-38G BOARD (UK MODEL)" then open the SS-38F board (AEP model), SS-38G board (UK model) ❶.
2) Refer to the "REMOVAL OF THE TA-28A BOARD (AEP MODEL), TA-29C BOARD (UK MODEL)" then open the TA-28A board (AEP model), TA-29C board (UK model) ❷.
3) Refer to the "REMOVAL OF THE PC-14B BOARD" then open the PC-14B board ❸.



2-12. REMOVAL OF THE PC-15B BOARD

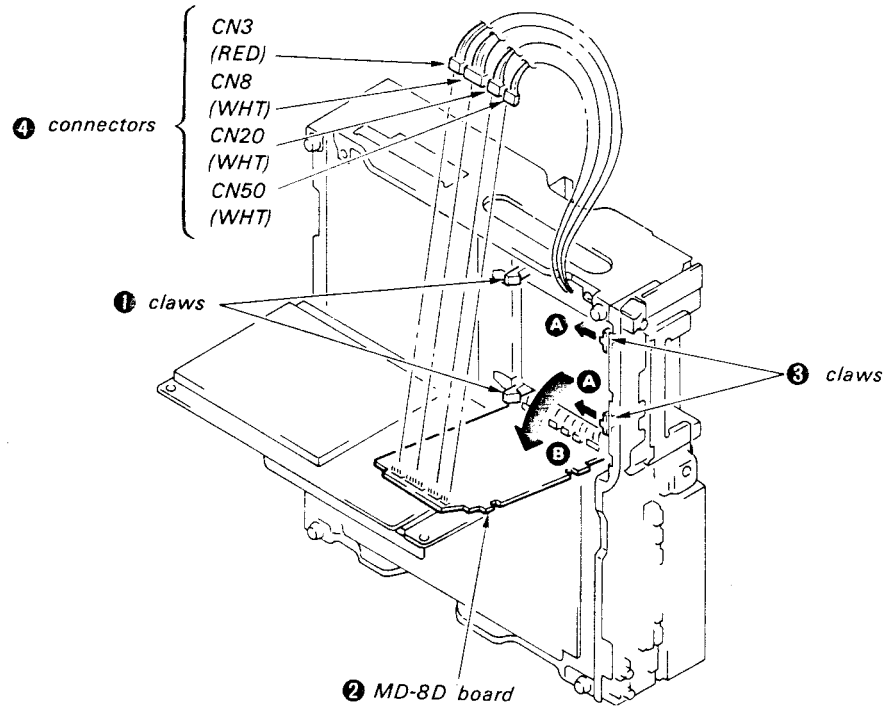
1) Remove the two screws ❶.
2) Open the PC-15B board ❷ in the direction shown by the arrow.

Note: When closing the PC-15B board ❷, as the PCB holder has been locked as shown in Fig. 1 unfasten the two claws ❸ at first, and then close the board.



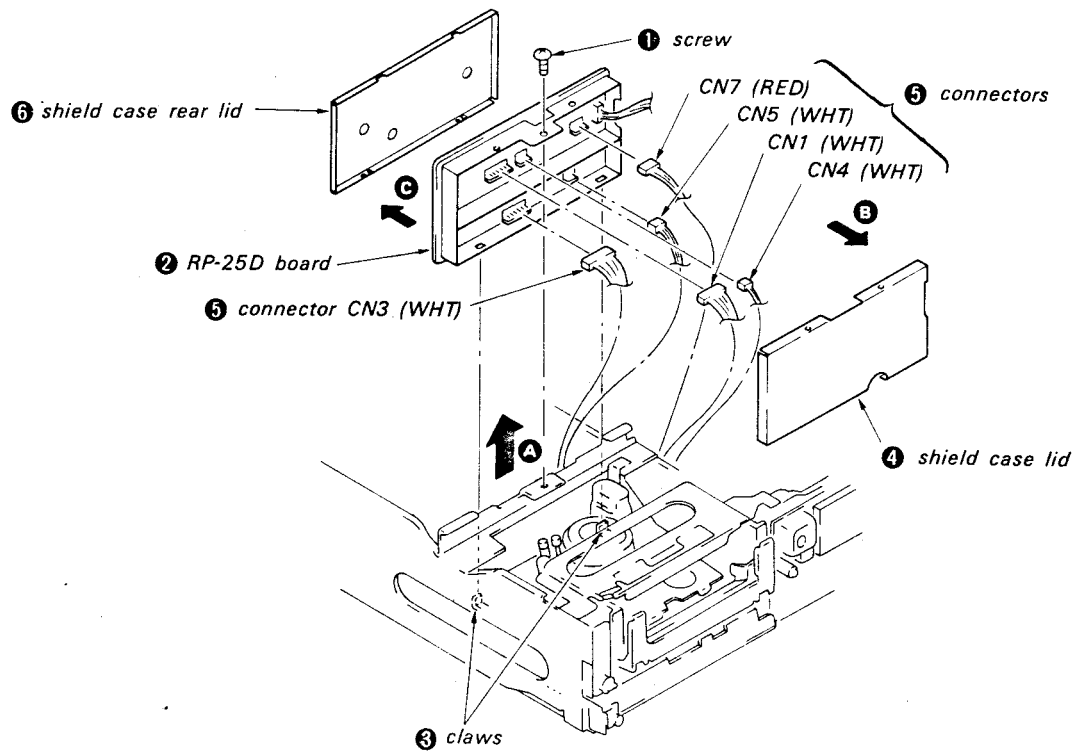
2-13. REMOVAL OF THE MD-8D BOARD

1) Remove the two claws ❶.
2) Slide MD-8D board ❷ in the direction shown by the arrow Ⓐ so that two claws disengage.
3) Pull out the four connectors (CN3, CN8, CN20, CN50) ❹.
4) Open the MD-8D board ❷ in the direction shown by the arrow Ⓑ.



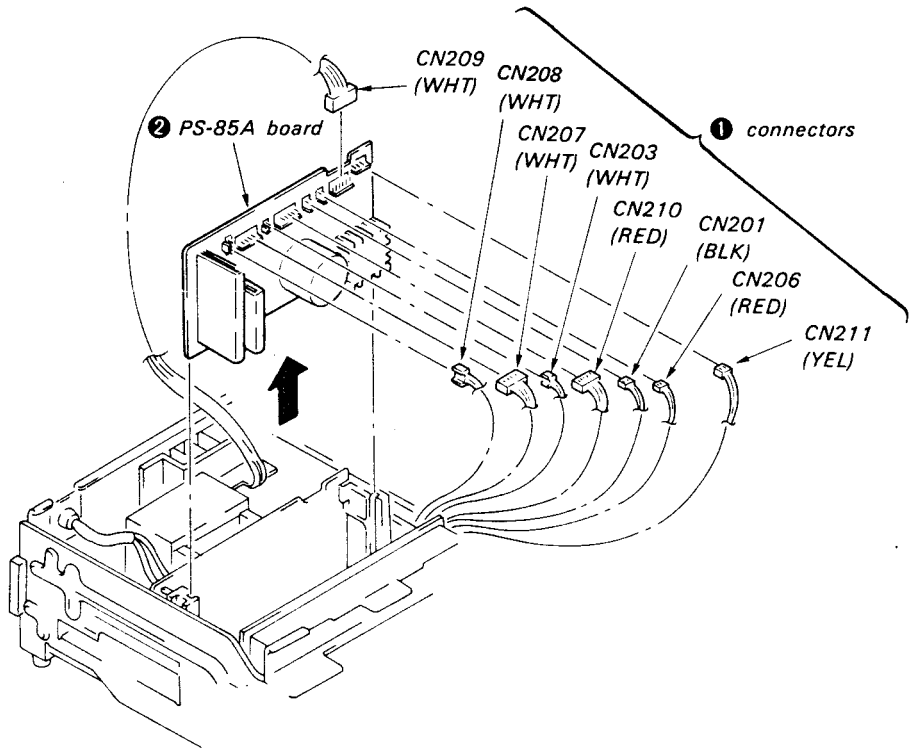
2-14. REMOVAL OF THE RP-25D BOARD

1) Remove the screw ❶.
2) Release RP-25D board ❷ from two claws ❸ and remove it in the direction shown by the arrow Ⓐ.
3) Remove the shield case lid ❹ in the direction shown by the arrow Ⓑ.
4) Pull out the five connectors (CN1, CN3, CN4, CN5, CN7) ❺.
5) Remove the shield case rear lid ❻ in the direction shown by the arrow Ⓒ.



2-15. REMOVAL OF THE PS-85A BOARD

1) Pull out the eight connectors (CN201, CN203, CN206, CN207, CN208, CN209, CN210, CN211) ❶.
2) Remove the PS-85A board ❷ in the direction shown by the arrow.



2-16. REMOVAL OF THE POWER BLOCK (PS-84A BOARD AEP MODEL), (PS-84B BOARD UK MODEL)

1) Pull out the four connectors (CN101,CN102, CN113, CN209) ❶.
2) Remove the wiring from claw ❷ of P.S board which hold down the wiring.
3) Remove the five screws ❸.
4) Remove the power block (PS-84A board AEP model),(PS-84B board UK model) ❹ and remove the PS-87 board ❺ in the direction by the arrow.

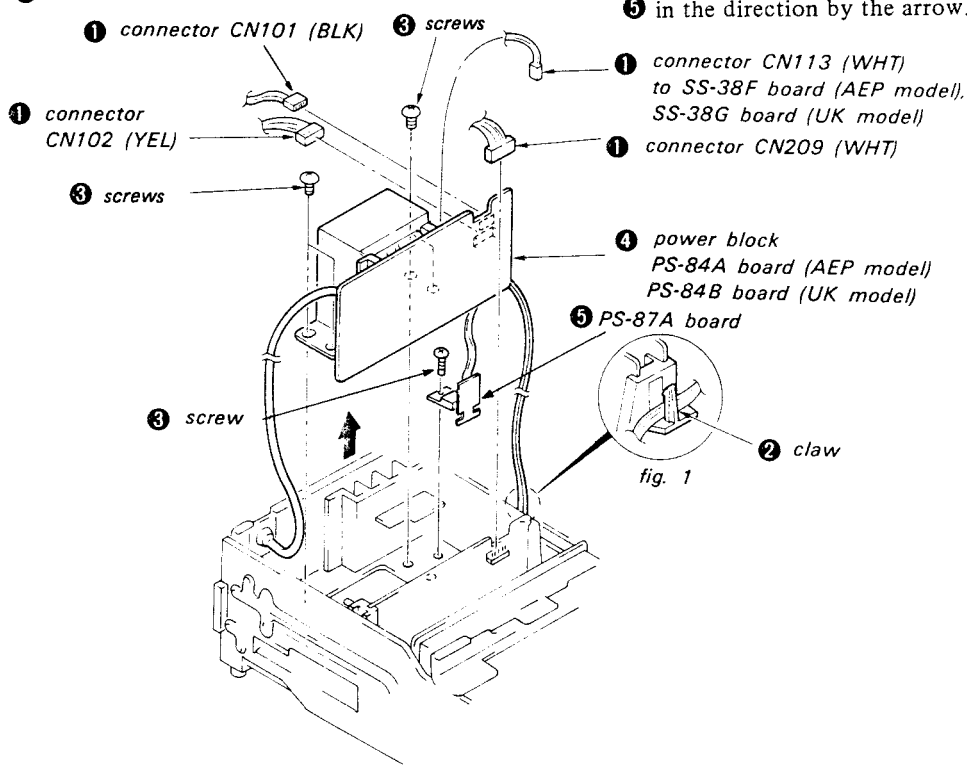
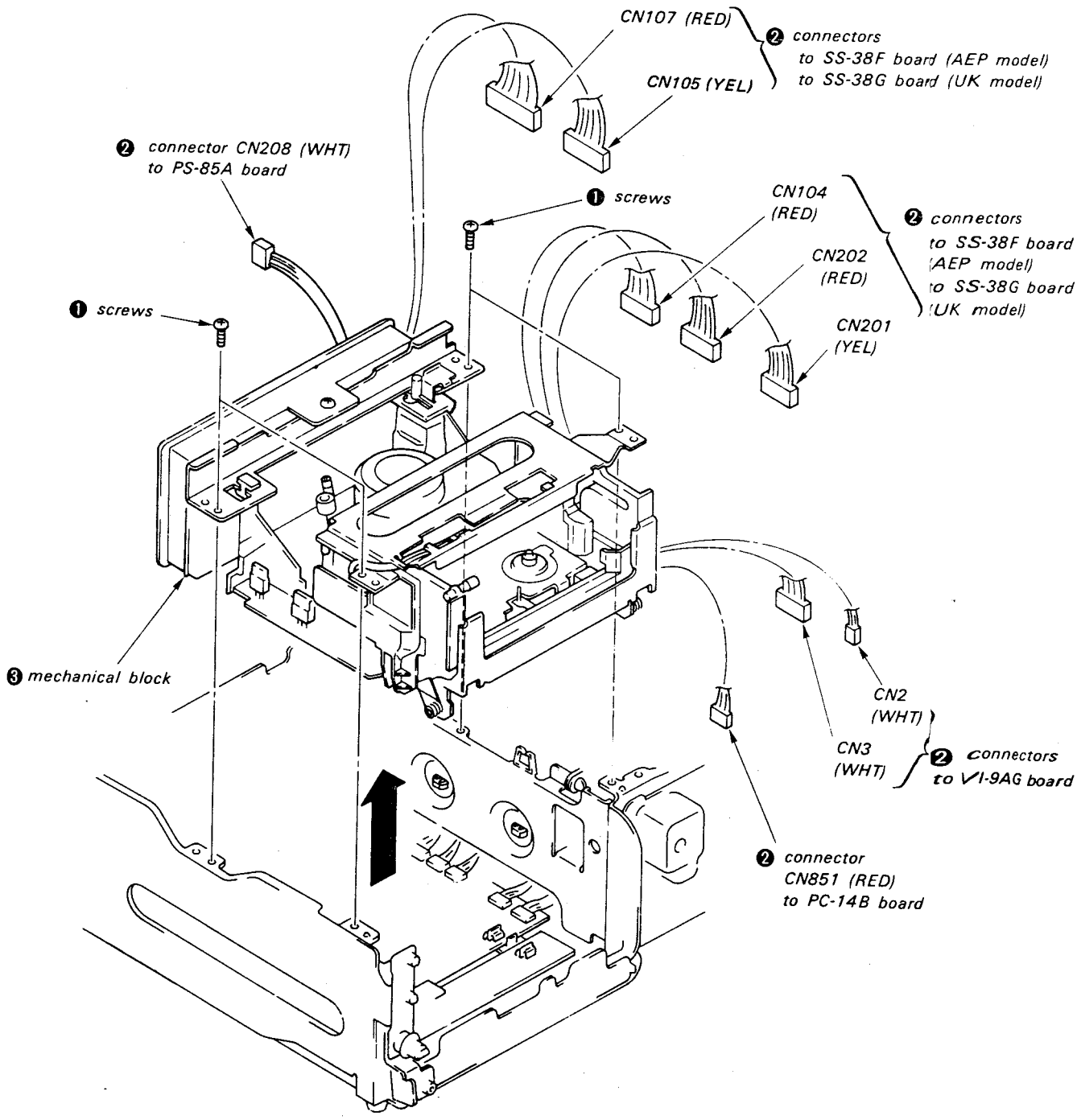


fig. 1

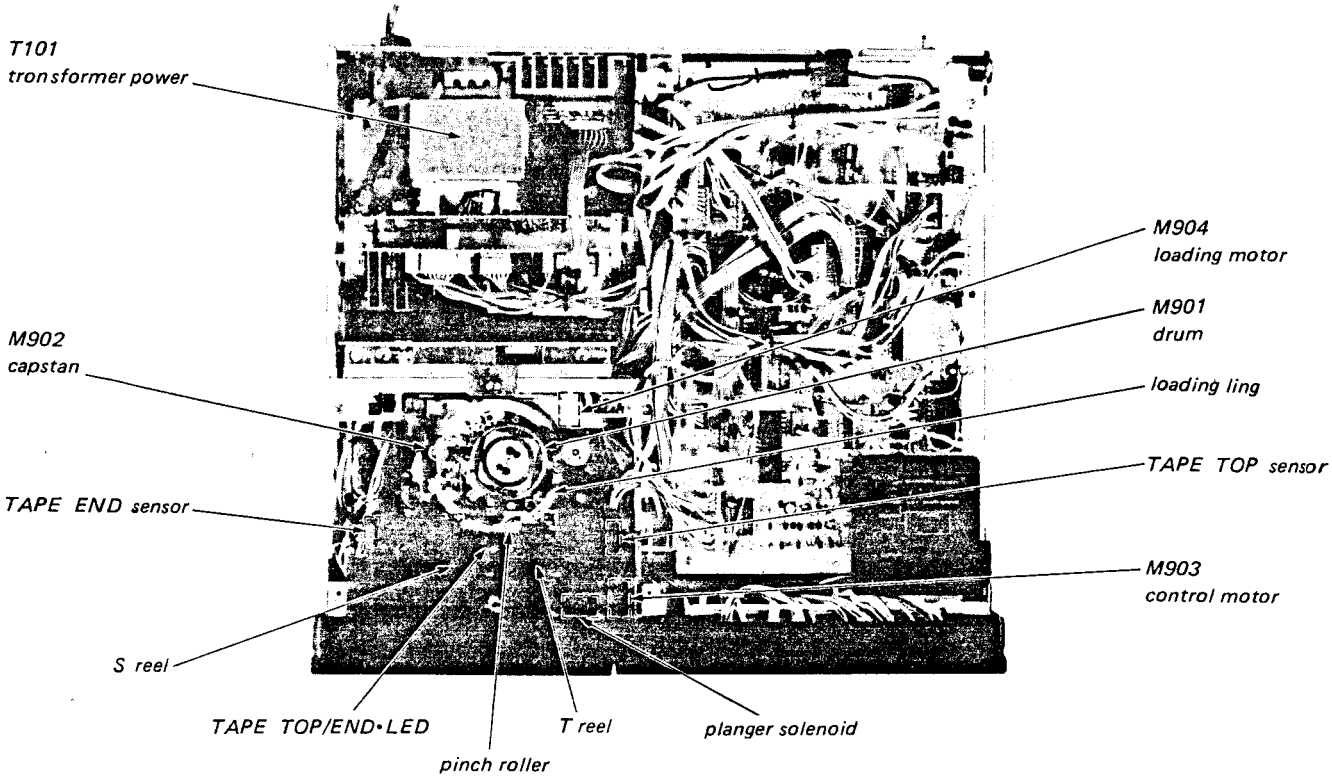
2-17. REMOVAL OF MECHANICAL BLOCK

1) Remove the four screws ❶.
2) Pull out the nine connectors (CN2, CN3, CN104, CN105, CN107, CN201, CN202, CN208, CN851) ❷.
3) Remove the mechanical block ❸ in the direction shown by the arrow.

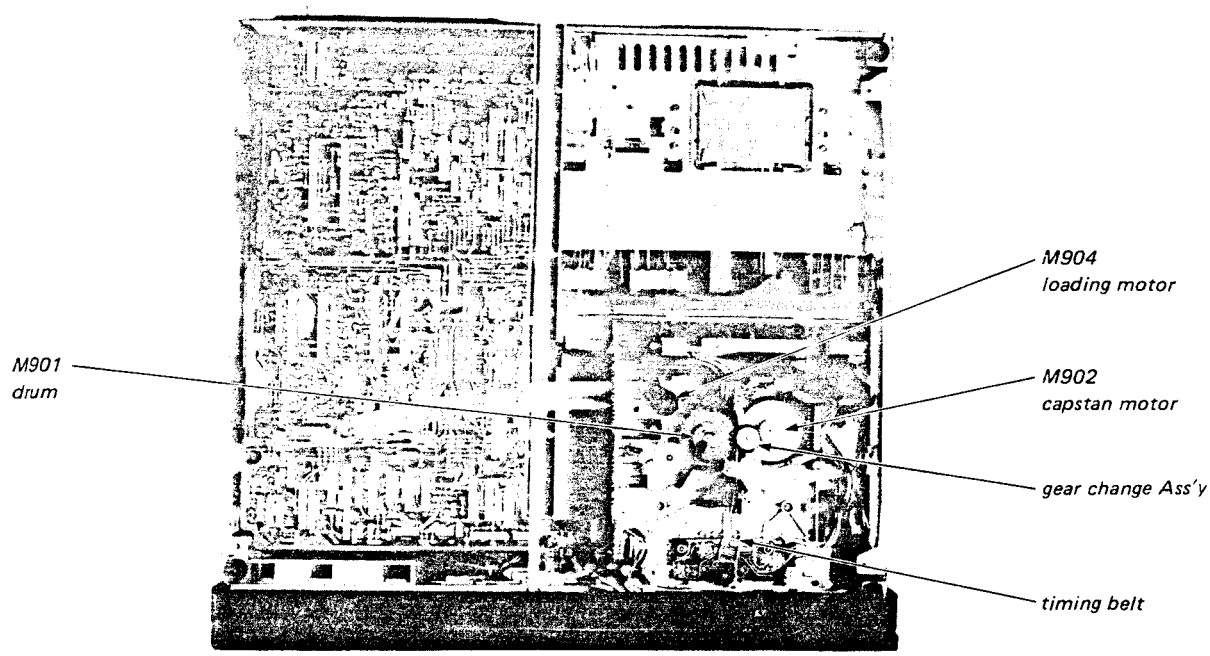


2-18. INTEWNAL VIEWS

– Top side –

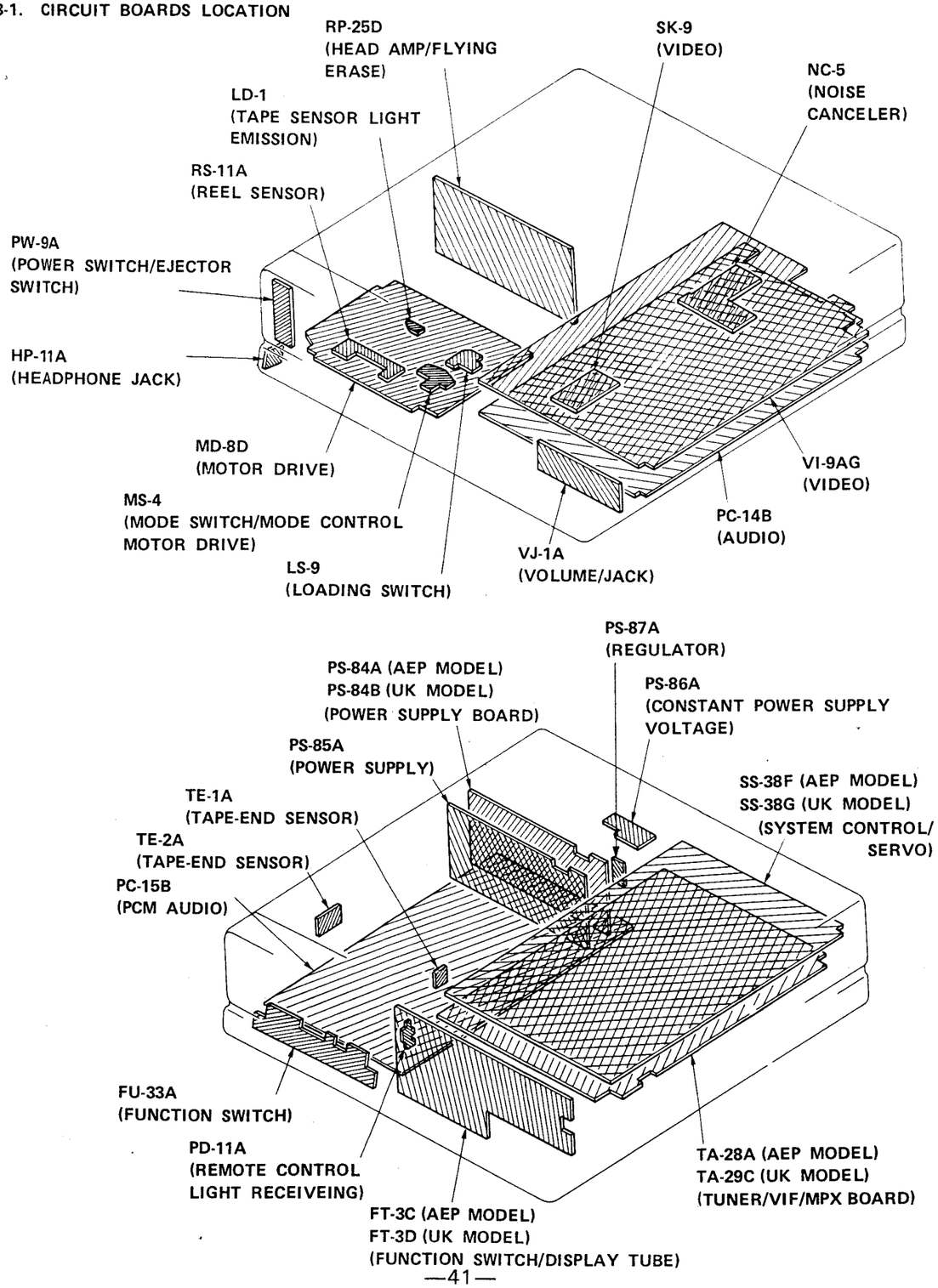


– Bottom side –

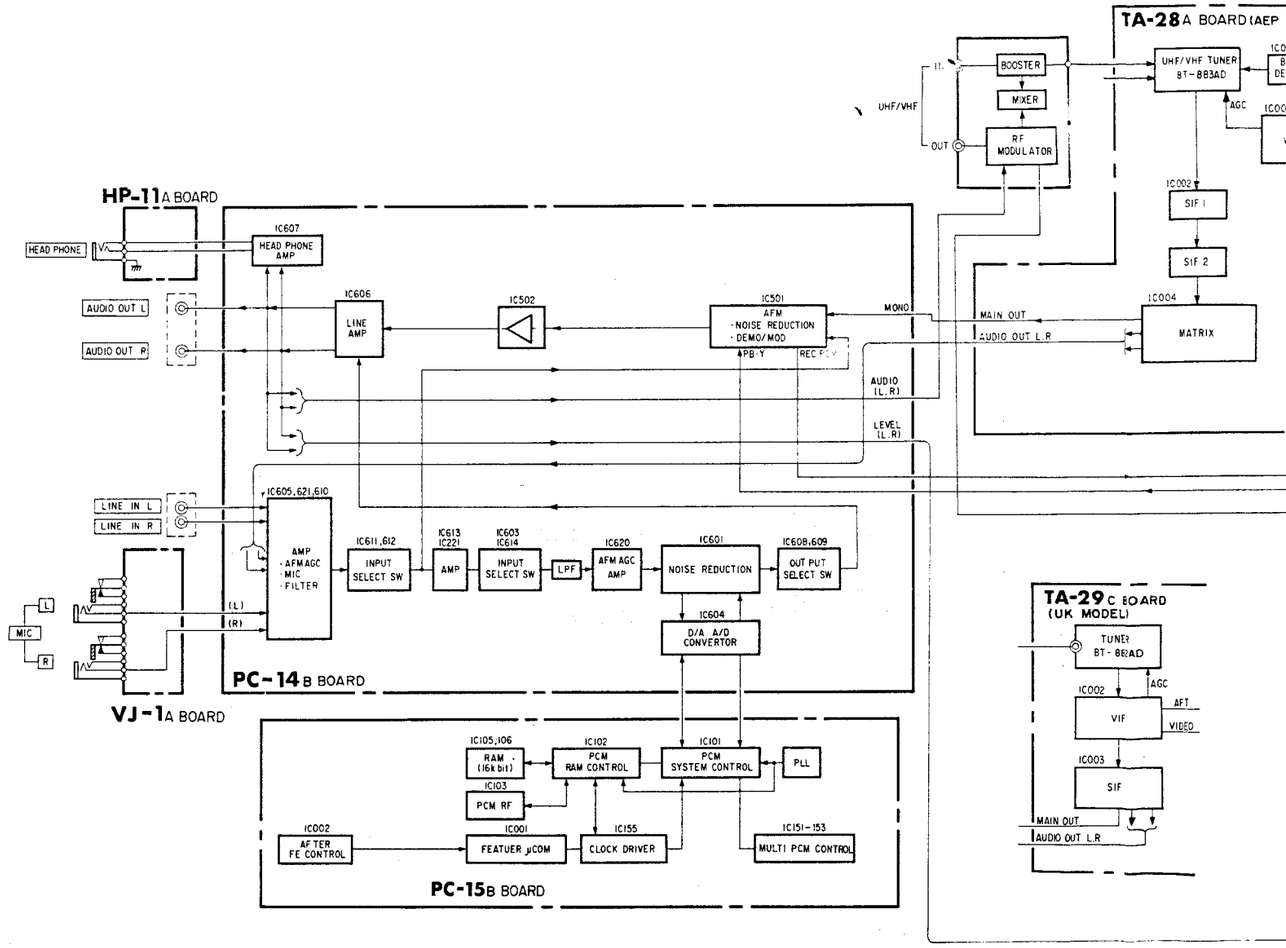


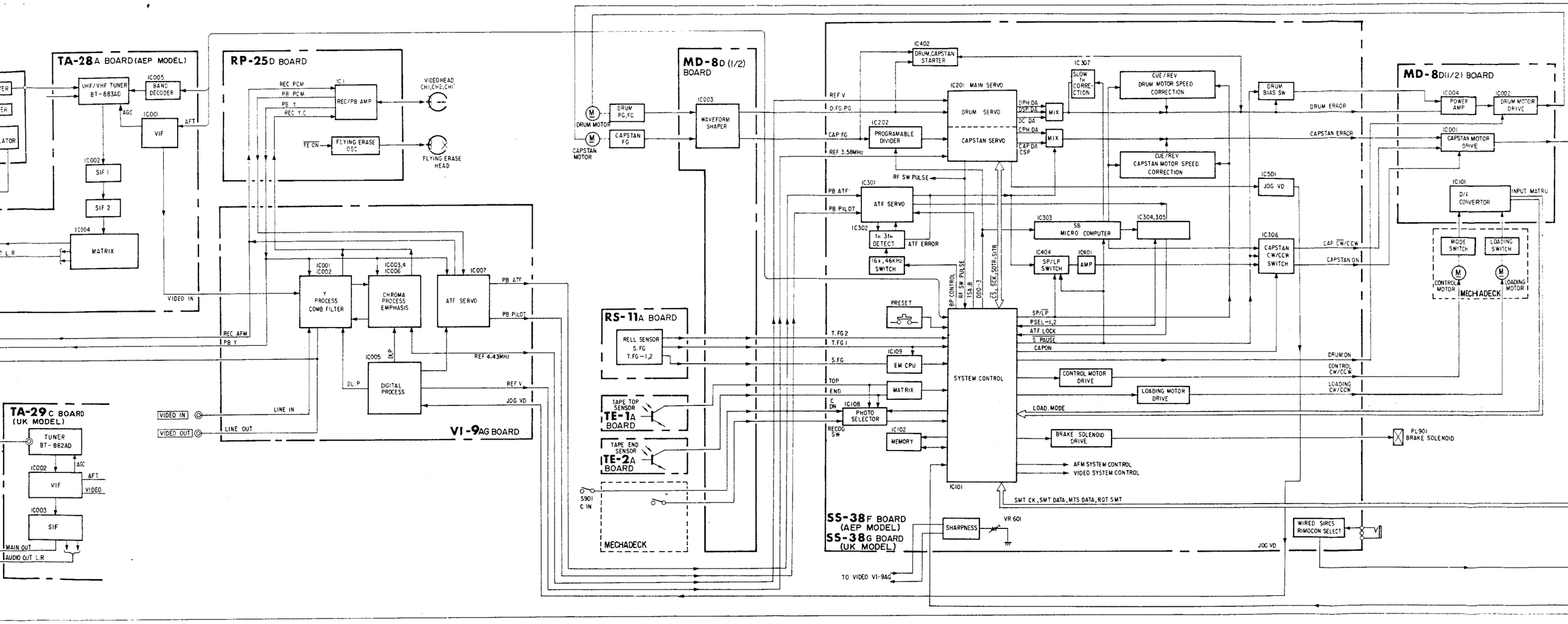
SECTION 3
DIAGRAMS

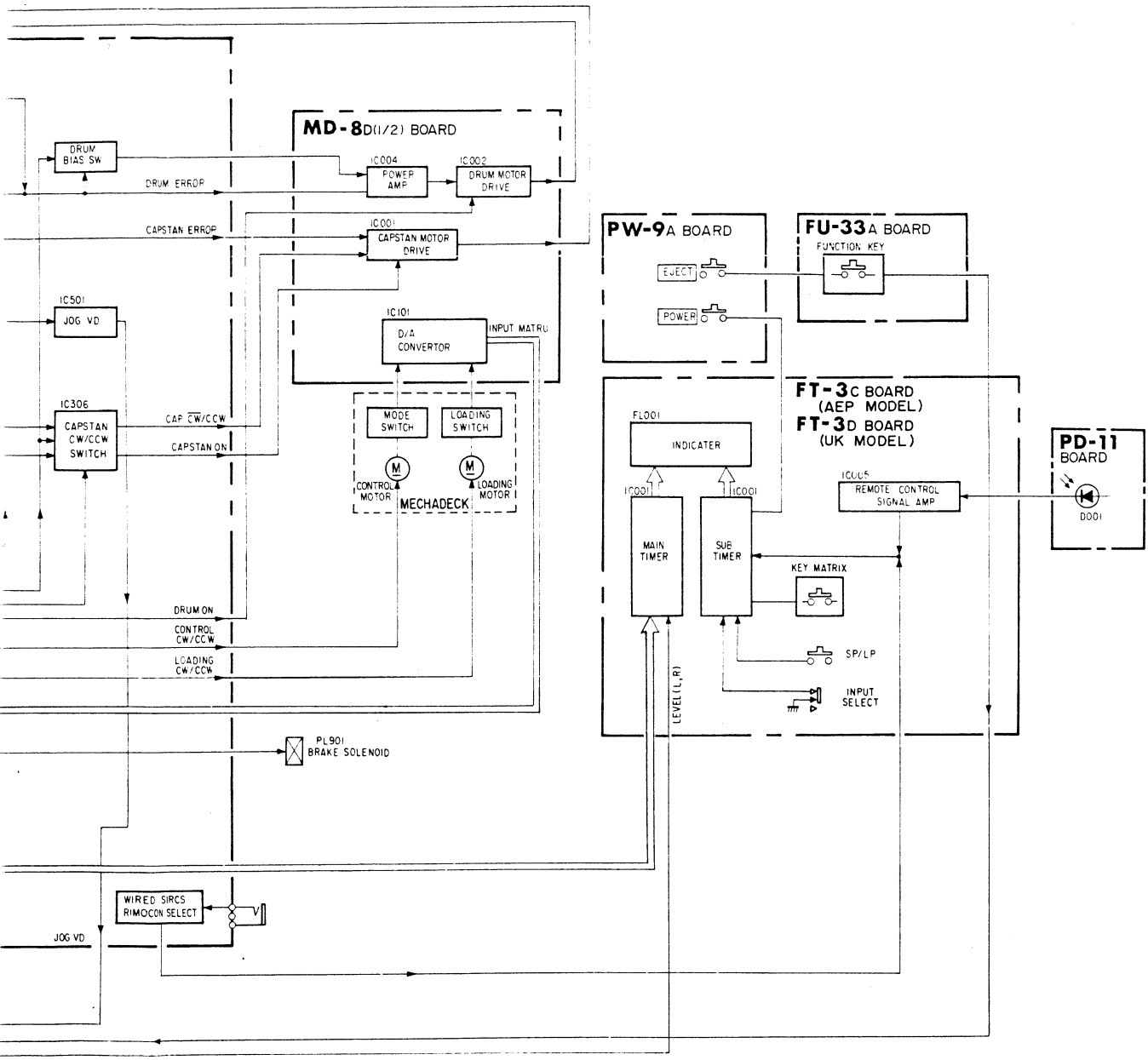
3-1. CIRCUIT BOARDS LOCATION



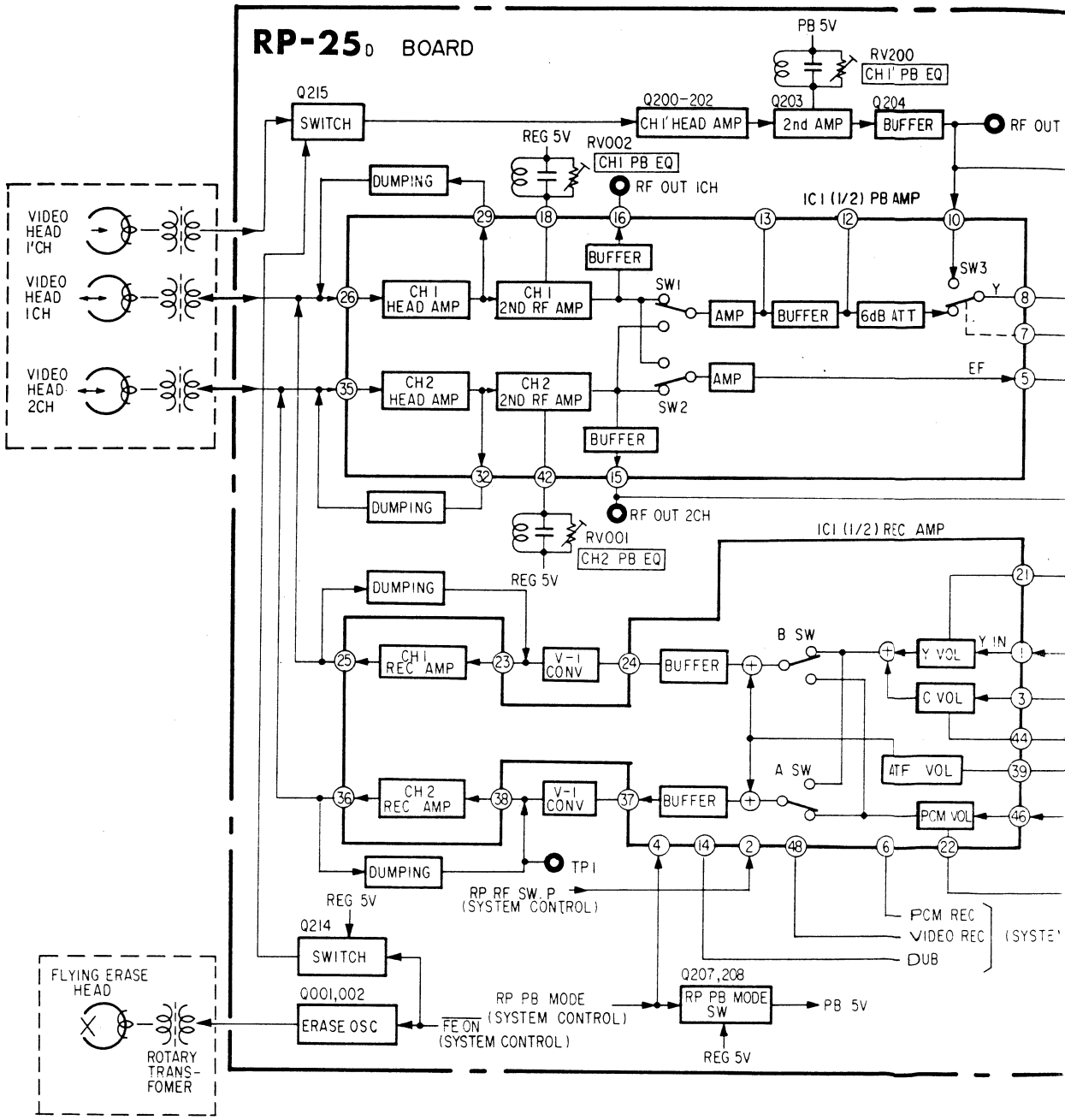
3-2. OVERALL BLOCK DIAGRAM

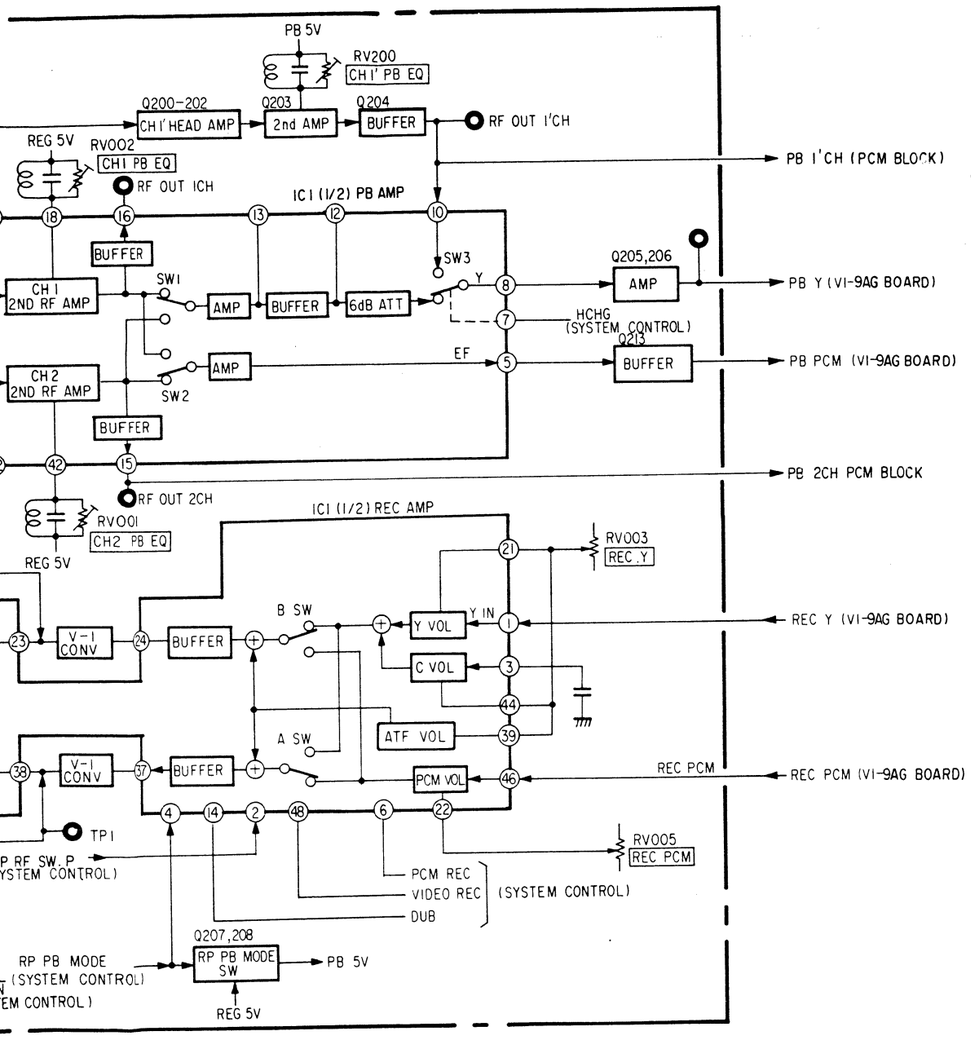



TA-28A BOARD (AEP MODEL)
UHF/VHF TUNER BT-883AD
IC005 BAND DECODER
AGC
IC001 VIF
AFT
IC002 SIF 1
SIF 2
IC004 MATRIX
T L R
RP-25D BOARD
REC PCM
PB PCM
PB Y
REC Y C
IC1 REC/PB AMP
VIDEOHEAD CH1,CH2,CH1'
FE ON
FLYING ERASE OSC
FLYING ERASE HEAD
VIDEO IN
IC001 IC002 Y PROCESS COMB FILTER
IC003,4 IC006 CHROMA PROCESS EMPHASIS
IC007 ATF SERVO
PB ATF
PB PILOT
REC AFM
PB Y
IC005 DL.P DIGITAL PROCESS
REF 4.43MHz
REF V
JOG VD
LINE IN
LINE OUT
VIDEO IN
VIDEO OUT
VI-9AG BOARD
TA-29C BOARD (UK MODEL)
TUNER BT-862AD
IC002 VIF
AGC
AFT
VIDEO
IC003 SIF
MAIN OUT
AUDIO OUT L.R
MD-8D (1/2) BOARD
DRUM MOTOR
CAPSTAN MOTOR
DRUM PG,FG
CAPSTAN FG
IC003 WAVEFORM SHAPER
REF V
D.FG.PG
CAP FG
REF 3.58MHz
RF SW PULSE
PB ATF
PB PILOT
IC301 ATF SERVO
IC302 fH 31k DETECT
ATF ERROR
16k,46kHz SWITCH
RS-11A BOARD
RELL SENSOR S.FG T.FG-1,2
T.FG 2
T.FG 1
S.FG
TOP
END
C DN
RECOG SW
TAPE TOP SENSOR
TE-1A BOARD
TAPE END SENSOR
TE-2A BOARD
S901 C IN
MECHADECK
IC402 DRUM,CAPSTAN STARTER
IC201 MAIN SERVO
DRUM SERVO
CAPSTAN SERVO
DPH DA
DSP DA
DC DA
CPH DA
CAP DA
CSP
MIX
IC202 PROGRAMABLE DIVIDER
PRESET
IC109 EM CPU
MATRIX
IC108 PHOTO SELECTOR
IC102 MEMORY
BP CONTROL
RF SW PULSE
ISA,B
D00-3
CS0, SCK, SOTR, SITR
SYSTEM CONTROL
IC101
IC307 SLOW fH CORRECTION
CUE/REV DRUM MOTOR SPEED CORRECTION
CUE/REV CAPSTAN MOTOR SPEED CORRECTION
IC303 SB MICRO COMPUTER
IC304,305
IC404 SP/LP SWITCH
IC401 AMP
SP/LP
PSEL-1,2
ATF LOCK
S PAUSE
CAPON
CONTROL MOTOR DRIVE
LOADING MOTOR DRIVE
LOAD MODE
BRAKE SOLENOID DRIVE
AFM SYSTEM CONTROL
VIDEO SYSTEM CONTROL
SMT CK, SMT DATA, MTS DATA, RQT SMT
SS-38F BOARD (AEP MODEL)
SS-38G BOARD (UK MODEL)
SHARPNESS
VR 601
TO VIDEO VI-9AG
JOG VD
WIRED SIRCS RIMOCON SELECT
MD-8D(1/2) BOARD
IC004 POWER AMP
IC002 DRUM MOTOR DRIVE
IC001 CAPSTAN MOTOR DRIVE
IC101 D/A CONVERTOR
INPUT MATRIX
DRUM BIAS SW
DRUM ERROR
CAPSTAN ERROR
IC501 JOG VD
IC306 CAPSTAN CW/CCW SWITCH
CAP CW/CCW
CAPSTAN ON
MODE SWITCH
LOADING SWITCH
CONTROL MOTOR
LOADING MOTOR
MECHADECK
DRUM ON
CONTROL CW/CCW
LOADING CW/CCW
PL901 BRAKE SOLENOID

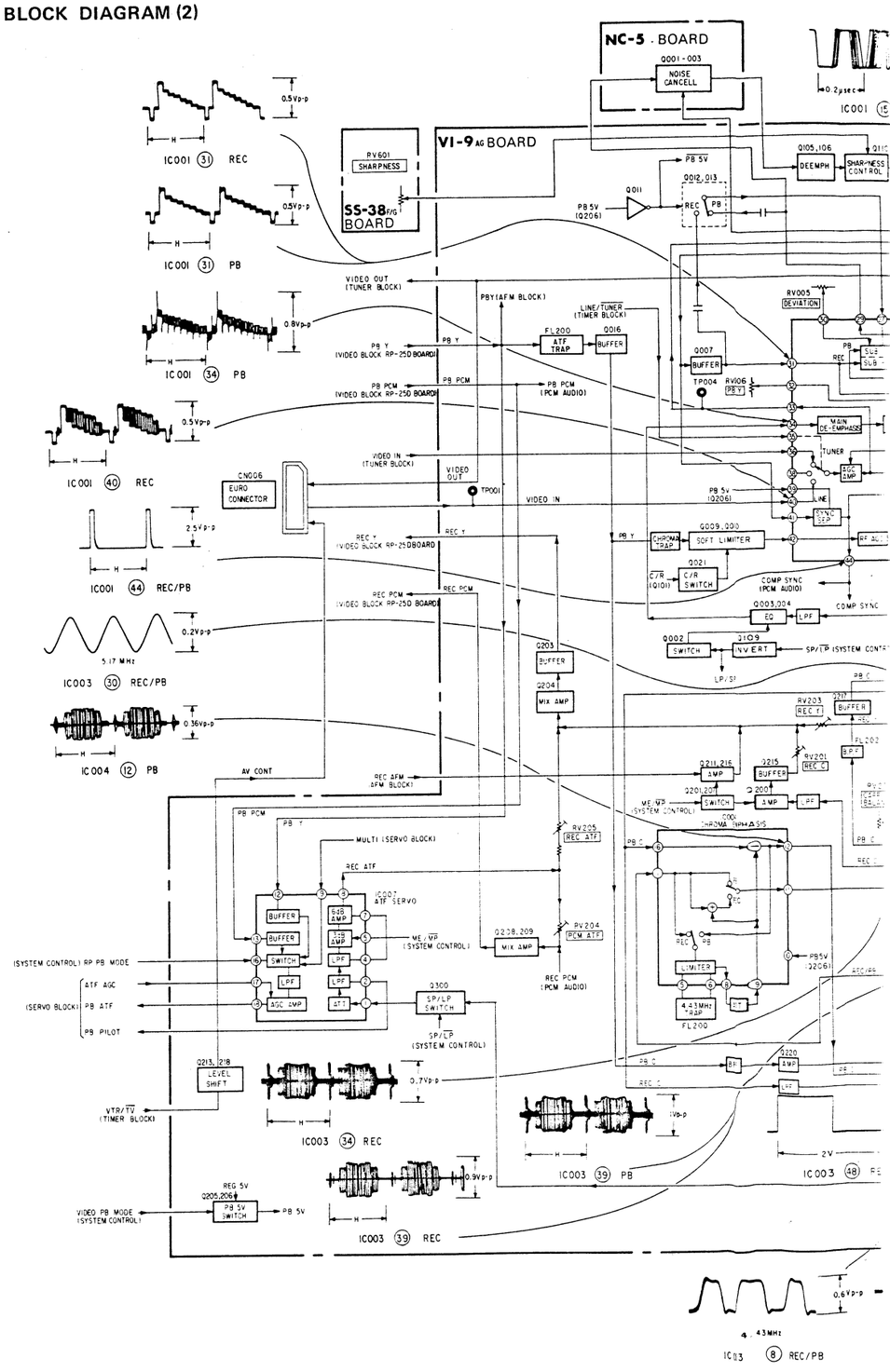

MD-8D(1/2) BOARD
DRUM BIAS SW
DRUM ERROR
IC004
POWER AMP
IC002
DRUM MOTOR DRIVE
CAPSTAN ERROR
IC001
CAPSTAN MOTOR DRIVE
IC501
JOG VD
IC101
D/A CONVERTOR
INPUT MATRU
IC306
CAPSTAN CW/CCW SWITCH
CAP CW/CCW
CAPSTAN ON
MODE SWITCH
LOADING SWITCH
CONTROL MOTOR
LOADING MOTOR
MECHADECK
DRUM ON
CONTROL CW/CCW
LOADING CW/CCW
PL901
BRAKE SOLENOID
WIRED SIRCS RIMOCON SELECT
JOG VD
PW-9A BOARD
EJECT
POWER
FU-33A BOARD
FUNCTION KEY
FT-3C BOARD
(AEP MODEL)
FT-3D BOARD
(UK MODEL)
FL001
INDICATER
IC001
IC001
MAIN TIMER
SUB TIMER
KEY MATRIX
SP/LP
INPUT SELECT
LEVEL(L,R)
IC005
REMOTE CONTROL SIGNAL AMP
PD-11
BOARD
D001

3-3. VIDEO BLOCK DIAGRAM (1)





3-4. VIDEO BLOCK DIAGRAM (2)



BOARD

Q001 - 003 NOISE CANCELL

PB 5V

Q012, 013 REC PB

Q105, 106 DEEMPH

Q110 SHARPNESS CONTROL

Q014, 015 REC/PB SWITCH

PB 5V (Q206)

0.5Vp-p 0.2μsec IC001 (15) REC

2.2Vp-p H IC001 (10) PB

0.5Vp-p H IC002 (38) PB

0.5Vp-p H IC002 (36) PB

0.6Vp-p H IC002 (44) PB

0.8Vp-p H IC001 (6) PB

0.5Vp-p H IC002 (36) REC

0.25Vp-p H IC002 (29) PB

0.5Vp-p H IC002 (28) REC

0.52Vp-p H IC002 (18) REC

0.55Vp-p H IC002 (16) PB

1Vp-p H IC002 (12) REC

1Vp-p H IC002 (12) PB

0.5Vp-p 4.43MHz IC006 (22) PB

4Vp-p H IC006 (15) REC/PB

RV005 DEVIATION

RV004 W/B CLIP

RV003 CARRIER

IC001 Y PROCESS

TP003 Va RF SW.P (SERVO BLOCK)

Q007 BUFFER

TP004

RV006 PB Y

PB SUB DE-EMPH SUB PRE-EMPH MAIN PRE EMPHASIS HALF H SHIFT FM MOD

REC Y

RV001 SYNC AGC

PB5V (Q011)

CLAMP AGC DET

MAIN DE-EMPHASIS PB LEVEL

TUNER AGC AMP

PB REC CLAMP AC ADD 12dB VIDEO OUT LEVEL

RV002 VIDEO OUT

LINE SYNC SEP

DOC DET

RF AGC LIMITER FM DEMOD

PB 5V (Q206)

Q009, Q010 SOFT LIMITER

Q021 C/R SWITCH

COMP SYNC (PCM AUDIO)

COMP SYNC

DL P.3 JOG VD (IC005) JOG (SERVO BLOCK)

DROP OUT

PB 5V (Q206)

0.5 Vp-p 13.3MHz RV206 375FM VCO IC002 (46) REC/PB

Q003, 004 EQ LPF

Q002 SWITCH

Q109 INVERT SP/LP (SYSTEM CONTROL)

LP/SP

PB C

RV203 REC Y

Q217 BUFFER

REC Y

Q008 BUFFER

REC Y TRAP

FL202 BPF

RV201 REC C

Q211, 216 AMP

Q215 BUFFER

Q201, 207 SWITCH

Q200 AMP

LPF

RV202 CARRIER BALANCE

CARRIER INVERT

CARRIER CONV

375 FM VCO

AFC ID

AFC

PB C REC

LPF

Q214 CHROMA MUTE

CHROMA MUTE (PCM AUDIO)

ACK

Q004 CHROMA EMPHASIS

CHROMA CONV

BURST EMPH/DE-EMPH

APC DET

SYNC DET

ACK

3.58MHz X'TAL OSC

CV200 (FSC) X200 4.43MHz

90° SHIFT

DLP.1

Ref 4.43MHz (SERVO BLOCK)

Ref 4.43MHz (IC006)

REC/PB C

ACC AMP ACC DET PEAK HOLD SW CHROMA INVERT

IC003 CHROMA PROCESS

PB 5V (Q206)

Va RF SW.P (SERVO BLOCK)

JOG (SYSTEM CONTROL)

3.2Vp-p H IC003 (14) REC/PB

5.2Vp-p 2V IC003 (48) REC/PB

0.6Vp-p 4.43MHz IC003 (8) REC/PB

0.4Vp-p H IC003 (16) PB

6Vp-p 5.86MHz IC005 (38) REC/PB

5Vp-p H IC005 (42) REC

5Vp-p H IC005 (1) REC/PB

5Vp-p H IC005 (3) PB

2.5Vp-p H IC005 (3) REC

5Vp-p V IC005 (4) STILL

2Vp-p 2V IC005 (9) REC/PB

5Vp-p 4V IC005 (10) REC/PB

0.2Vp-p IC006 (8) 3.7MHz IC006 (10) 5.17MHz REC/PB

IC002 COMB FILTER

LV100 COMB FILTER

DL100 4.43MHz

FM DELAY

Q107 REC/PB SWITCH

RV100 COMB FILTER

REC PB/C

RV101 COMB AGC

VCC DET

AM DET

AGC

IN DELAY DL101 13.3MHz

FM MOD

CLAMP CLAMP

X100 13.3MHz

HD INSERT (PCM AUDIO)

Q100, Q017 SWITCH

C/R (Q101)

DUB AREA (PCM AUDIO)

PB 5V (Q206)

PB CHROMA

Q108 SWITCH

LP/SP (Q109)

DL P.2 (IC005)

Q102~Q104 L.P.F EQ

ACK (IC003)

6dB

REC PB

B/W COLOR

PB ON

NON CORR CORR

CORRELATION DET

REC ON

DROP OUT (IC001)

LIMITER

NORM PCM+AFREC

Q101 C/R (SYSTEM CONTROL)

IC005 DIGITAL PROCESS

LATCH

375

AFC ETC

INVERTER SELECTER 90° SHIFT

LATCH PS CHI

SEPLATER

VIRS PULSE

DELAY PULSE

DETECTER GATE

SYSTEM RESET (SYSTEM CONTROL)

5Vp-p H IC005 (33) REC/PB

COMP SYNC

D203 VIDEO MUTE (SYSTEM CONTROL) / MMM (PCM AUDIO)

PB5V (Q206)

1.4Vp-p 5.9MHz IC005 (13) PB

D204 Q258 ACK (IC003)

PB5V (Q206)

JOG VD (SERVO BLOCK) COMP SYNC (IC001)

SEL-2 SEL-1 REF V (SERVO BLOCK)

X201 5.9MHz

SWP

DLP.1 DLP.2 DLP.3

$f_1 - f_4$

IC006 JOG CHROMA PROCESS

6dB

APC CORRECTION

GCA

Ref 4.43MHz (IC003)

PHASE SHIFT

QUASI BURST

MAIN SWITCH

1/2FH

RV103 REF LEVEL

FL100 3.7MHz BPF

FL101 5.17MHz BPF

PHASE SHIFT

BURST ID DET

SEQUENCE DET

SWITCH CONTROL

IIL LOGIC

CLF GENERATOR

F.M V.C.O

S/H LPF

D103 PB5V (Q206) JOG

DLP.1 (IC003)

RV102 H VCO

4Vp-p 732KHz IC005 (35) REC/PB

SK-9 BOARD

Q401 APC TIME CONSTANT SWITCH

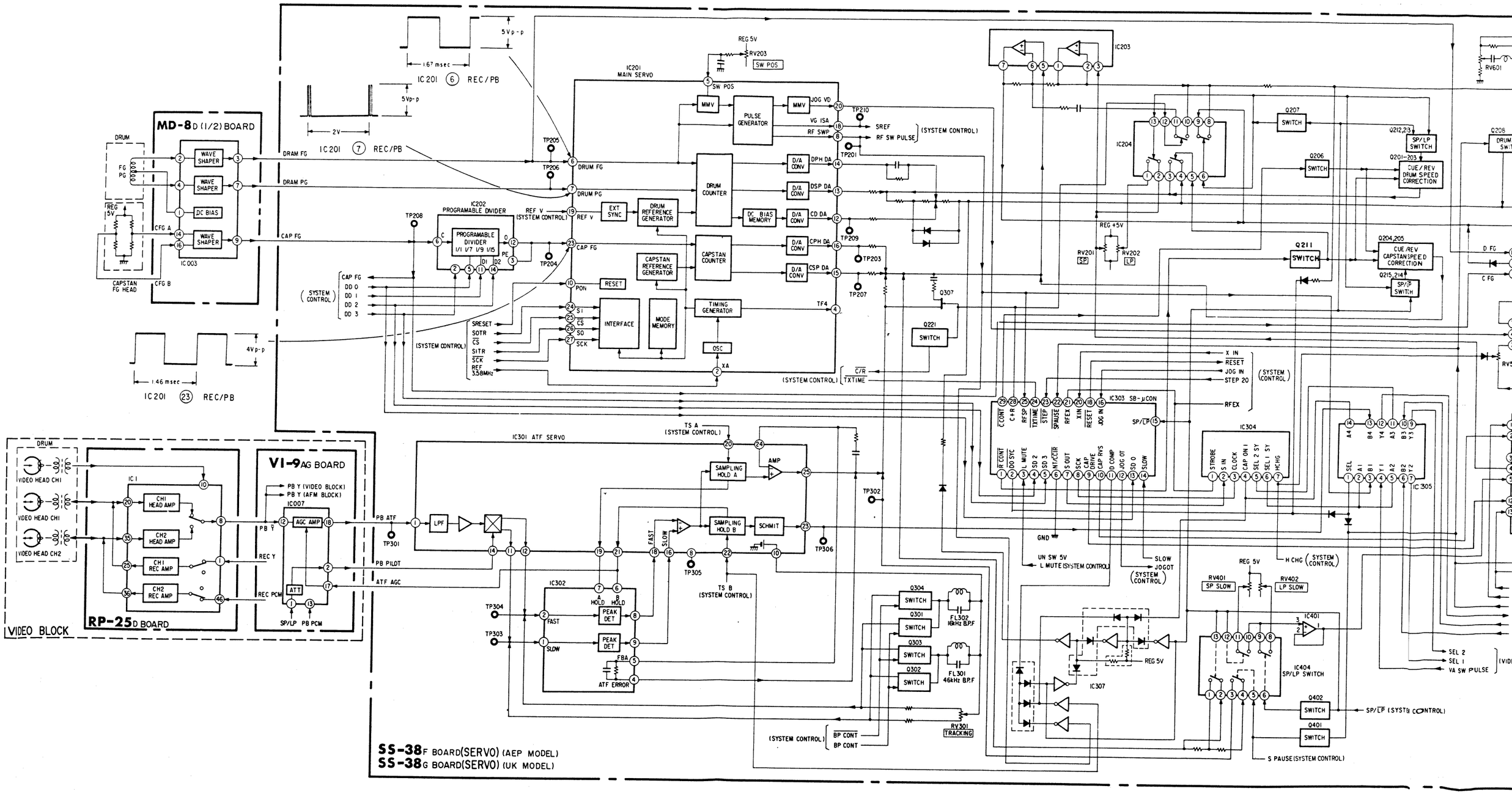
Q402 INHIBIT

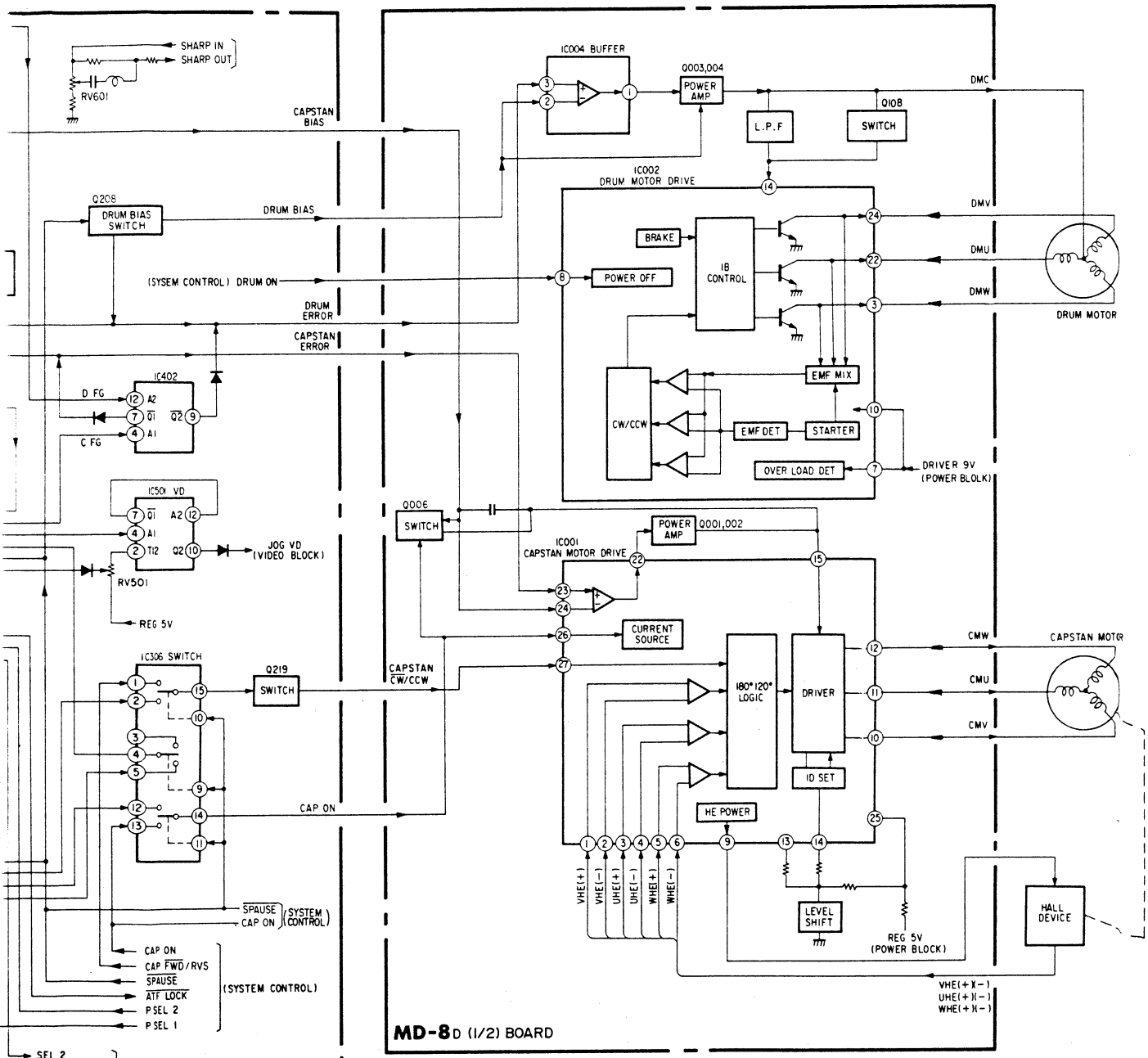
Q111 JOG (SYSTEM CONTROL)

PB CHROMA

VA RF SW.P (SERVO BLOCK)

3-5. SERVO BLOCK DIAGRAM




SHARP IN
SHARP OUT
RV601
CAPSTAN BIAS
Q208
DRUM BIAS SWITCH
DRUM BIAS
(SYSEM CONTROL) DRUM ON
DRUM ERROR
CAPSTAN ERROR
D FG
C FG
IC402
IC501 VD
JOG VD (VIDEO BLOCK)
RV501
REG 5V
IC306 SWITCH
Q219 SWITCH
CAPSTAN CW/CCW
CAP ON
SPAUSE
CAP ON
(SYSTEM CONTROL)
CAP ON
CAP FWD/RVS
SPAUSE
ATF LOCK
PSEL 2
PSEL 1
(SYSTEM CONTROL)
SEL 2
SEL 1
VA SW PULSE
(VIDEO BLOCK)
IC004 BUFFER
Q003,004 POWER AMP
L.P.F
Q108 SWITCH
DMC
IC002 DRUM MOTOR DRIVE
DMV
DMU
DMW
DRUM MOTOR
BRAKE
POWER OFF
IB CONTROL
EMF MIX
CW/CCW
EMF DET
STARTER
OVER LOAD DET
DRIVER 9V (POWER BLOLK)
Q006 SWITCH
IC001 CAPSTAN MOTOR DRIVE
POWER AMP Q001,002
CURRENT SOURCE
180°120° LOGIC
DRIVER
ID SET
HE POWER
LEVEL SHIFT
REG 5V (POWER BLOCK)
CMW
CMU
CMV
CAPSTAN MOTOR
HALL DEVICE
VHE(+)
VHE(-)
UHE(+)
UHE(-)
WHE(+)
WHE(-)
VHE(+)(-)
UHE(+)(-)
WHE(+)(-)
MD-8D (1/2) BOARD

3-6. SYSTEM CONTROL CIRCUIT AND RP AMP BLOCK INTERFACE

SIGNAL \ MODE	I/O	Pin No.	STOP	PB	REC	FF	REW	CUE	REV	PB PAUSE	REC PAUSE	LOADING	EJECT
AF REC	O	IC101 46pin	L	L	L	L	L	L	L	L	L	L	L
$\overline{\text{FEON}}$	O	IC101 47pin	H	H	L	H	H	H	H	H	H	H	H
RP PB MODE	O	IC101 48pin	H	H	L	H	H	H	H	H	H	H	H
VIDEO REC	O	IC101 49pin	L	L	H	L	L	L	L	L	L	L	L

3-7. SYSTEM CONTROL CIRCUIT AND VIDEO BLOCK INTERFACE

SIGNAL \ MODE	I/O	Pin No.	STOP	PB	REC	FF	REW	CUE	REV	PB PAUSE	REC PAUSE	LOADING	EJECT
VIDEO MUTE	O	IC101 43pin	L	L	L	L	L	L	L	L	L	L	L
JOG	O	IC101 44pin	L	L	L	L	L	H	H	H	L	L	L
VIDEO PB	O	IC101 45pin	L	H	L	L	L	H	H	H	L	L	L
SP/$\overline{\text{LP}}$	O	IC101 38pin	Depending on SP/LP SW	Result of automatic discrimination	Depending on SP/LP SW which is activated immediately before	H	H	Holds PB mode which has been activated immediately before	←	←	Depending on SP/LP SW which is activated immediately before	H	H
SRESET	O	IC101 28pin	L	L	L	L	L	L	L	L	L	L	L

3-8. SYSTEM CONTROL CIRCUIT AND FEATURE BLOCK INTERFACE

SIGNAL \ MODE	I/O	Pin No.	STOP	PB	REC	FF	REW	CUE	REV	PB PAUSE	REC PAUSE	LOADING	EJECT
RQT SF	O	IC101 57pin											
MACK	I	IC101 75pin											
SO	O	Q116 collector	*1										
Si	I	Q150 emitter											
$\overline{\text{SFCK}}$	I	Q106 emitter											

*1 Serial data transport control signal and data signal control microcomputer and feature microcomputer

OADING	EJECT	DUB	DUB PAUSE
L	L	H	L
H	H	H	H
H	H	H	H
L	L	L	L

OADING	EJECT	DUB	DUB PAUSE
L	L	L	L
L	L	L	H
L	L	H	H
H	H	Holds PB mode which has been activated immediately before	←
L	L	L	L

OADING	EJECT	DUB	DUB PAUSE

signal and data signal of system
ature microcomputer

3-9. SYSTEM CONTROL CIRCUIT AND SERVO CIRCUIT INTERFACE

SIGNAL	MODE I/O	Pin No.	STOP	PB	REC	FF	REW	CUE	REV	PB PAUSE	REC PAUSE	LOADING	EJECT	DUB	DUB PAUSE
SEL 1	0	IC101 41pin	H	*1	*1	H	H	*1	*1	H	H	H	H	*1	H
SEL 2	0	IC101 42pin	H	*1	*1	H	H	*1	*1	*1	H	H	H	*1	*1
SRESET	0	IC101 28pin	L	L	L	L	L	L	L	L	L	L	L	L	L
TSA	0	IC101 40pin	L	*1	L	L	L	L	L	L	L	L	L	*1	L
TSB	0	IC101 39pin	L	*1	L	L	L	L	L	*1	L	L	L	L	*1
$\overline{\text{ATFLOCK}}$	1	IC101 3pin	←					*2							→
CAP ON	0	IC101 35pin	L	H	H	H	H	H	H	H	L	H	H	H	H
CAP $\overline{\text{FWD}}$/RVS	0	IC101 36pin	L	L	L	L	H	L	H	L	L	H	L	L	L
DRM ON	0	IC101 37pin	L	H	H	H	H	H	H	H	H	H	H	H	H
$\overline{\text{S PAUSE}}$	0	IC101 4pin	H	H	H	H	H	H	H	L	H	H	H	H	L
DD 0	0	IC101 5pin	H	H	H	H	H	H	H	H	H	H	H	H	H
DD 1	0	IC101 6pin	L	L	L	H	L	L	H	L	L	L	H	L	L
DD 2	0	IC101 7pin	L	L	L	L	L	L	H	L	L	L	H	L	L
DD 3	0	IC101 8pin	L	L	L	H	H	H	L	L	L	L	H	L	L
CAP FG32	1	IC101 67pin	Unprovided	Provided	Provided	Provided	Provided	Provided	Provided	Unprovided	Unprovided	Provided	Provided	Provided	Unprovided
$\overline{\text{CS}}$	0	IC101 27pin	*3												
SO	0	Q116 collector													
SI	1	Q118 collector													
$\overline{\text{SCK}}$	0	Q117 collector													
$\overline{\text{IRQ}}$	1	IC101 66pin	Unprovided	Provided	Provided	Provided	Provided	Provided	Provided	Provided	Provided	Provided	Provided	Provided	Provided
RF SW P	1	IC101 69pin	Unprovided	Provided	Provided	Provided	Provided	Provided	Provided	Provided	Provided	Provided	Provided	Provided	Provided
SP/$\overline{\text{LP}}$	0	IC101 38pin	Depending on SP/LP SW	Result of automatic discrimination	Depending on SP/LP SW which is activated immediately before	H	H	Holds PB mode which has been activated immediately before	←	←	Depending on SP/LP SW which is activated immediately before	H	H	Holds PB mode which has been activated immediately before.	←
$\overline{\text{STEP 10}}$	0	IC101 29pin	H	H	H	H	H	H	H	H	H	H	H	H	H

***1** Changes in accordance with ATF sequence

***2** Changes in accordance with ATF tracking

***3** Serial digital input/output control signal and data signal against digital servo.

***4** At rise up/rise up and tape top/end of interruption input of RF SW pulses, pulse of "L" active is input.

3-10. SYSTEM CONTROL CIRCUIT AND MECHANISM BLOCK INTERFACE

SIGNAL \ MODE	I/O	Pin No.	STOP	PB	REC	FF	REW	CUE	REV	PB PAUSE	REC PAUSE	LOADING	EJECT	DUB	DUB PAUSE
C DOWN	I	IC108 5pin	L	L	L	L	L	L	L	L	L	L	L	L	L
TAPE TOP	I	IC108 3pin	←					*1							→
TAPE END	I	IC108 6pin	←					*2							→
REC PROOF	I	IC108 2pin	←					*3							→
LOAD CW	O	IC101 23pin	L	L	L	L	L	L	L	L	L	H	L	L	L
LOAD CCW	O	IC101 24pin	L	L	L	L	L	L	L	L	L	L	H	L	L
CONT CW	O	IC101 21pin	L	L	L	L	L	L	L	L	L	L	L	L	L
CONT CCW	O	IC101 22pin	L	L	L	L	L	L	L	L	L	L	L	L	L
$\overline{\text{UNBRAKE START}}$	O	IC101 25pin	H	H	H	H	H	H	H	H	H	H	H	H	H
$\overline{\text{UNBRAKE HOLD}}$	O	IC101 26pin	H	L	L	L	L	L	L	L	L	L	L	L	L

*1 "H" at tape top
*2 "H" at tape end
*3 "H" at recording prohibit

3-11. SYSTEM CONTROL CIRCUIT AND AUDIO CIRCUIT INTERFACE

SIGNAL \ MODE	I/O	Pin No.	STOP	PB	REC	FF	REW	CUE	REV	PB PAUSE	REC PAUSE	LOADING	EJECT	DUB	DUB PAUSE
REC MUTE	O	IC101 52pin	H	H	L	H	H	H	H	H	H	H	H	H	H
LINE MUTE	O	IC101 53pin	L	L	L	L	L	H	H	H	L	L	L	L	L
$\overline{\text{AUDIO PB}}$	O	IC101 54pin	H	L	H	H	H	L	L	L	H	H	H	H	H

3-12. SYSTEM CONTROL CIRCUIT AND TUNER BLOCK INTERFA

SIGNAL \ MODE	I/O	Pin No.	STOP	PB	REC	FF	R
UP	I	IC101 72pin					
DOWN	I	IC101 74pin	*1				
$\overline{\text{HDET}}$	I	IC101 70pin					
AMUTE	O	IC101 1pin	L	L	L	L	
BAND 1	O	IC101 56pin	*2				
BAND 2	O	IC101 55pin					
CLK	O	IC101 76pin					
C 1	O	IC101 77pin					
C 2	O	IC101 78pin	*3				
C 3	O	IC101 79pin					
I/O	I/O	IC101 80pin					

3-13. SYSTEM CONTROL CIRCUIT AND TIMER BLOCK INTERFA

SIGNAL \ MODE	I/O	Pin No.	STOP	PB	REC	FF	R
RQTMTS	I	IC108 10pin					
RQTSMT	O	IC101 58pin					
SMTDATA	O	IC101 63pin	*1				
TRDATA	I	Q105 emitter					
$\overline{\text{SMTCK}}$	O	Q104 collector					

›CK INTERFACE

	FF	REW	CUE	REV	PB PAUSE	REC PAUSE	LOADING	EJECT	DUB	DUB PAUSE
	L	L	L	L	L	L	L	L	L	L

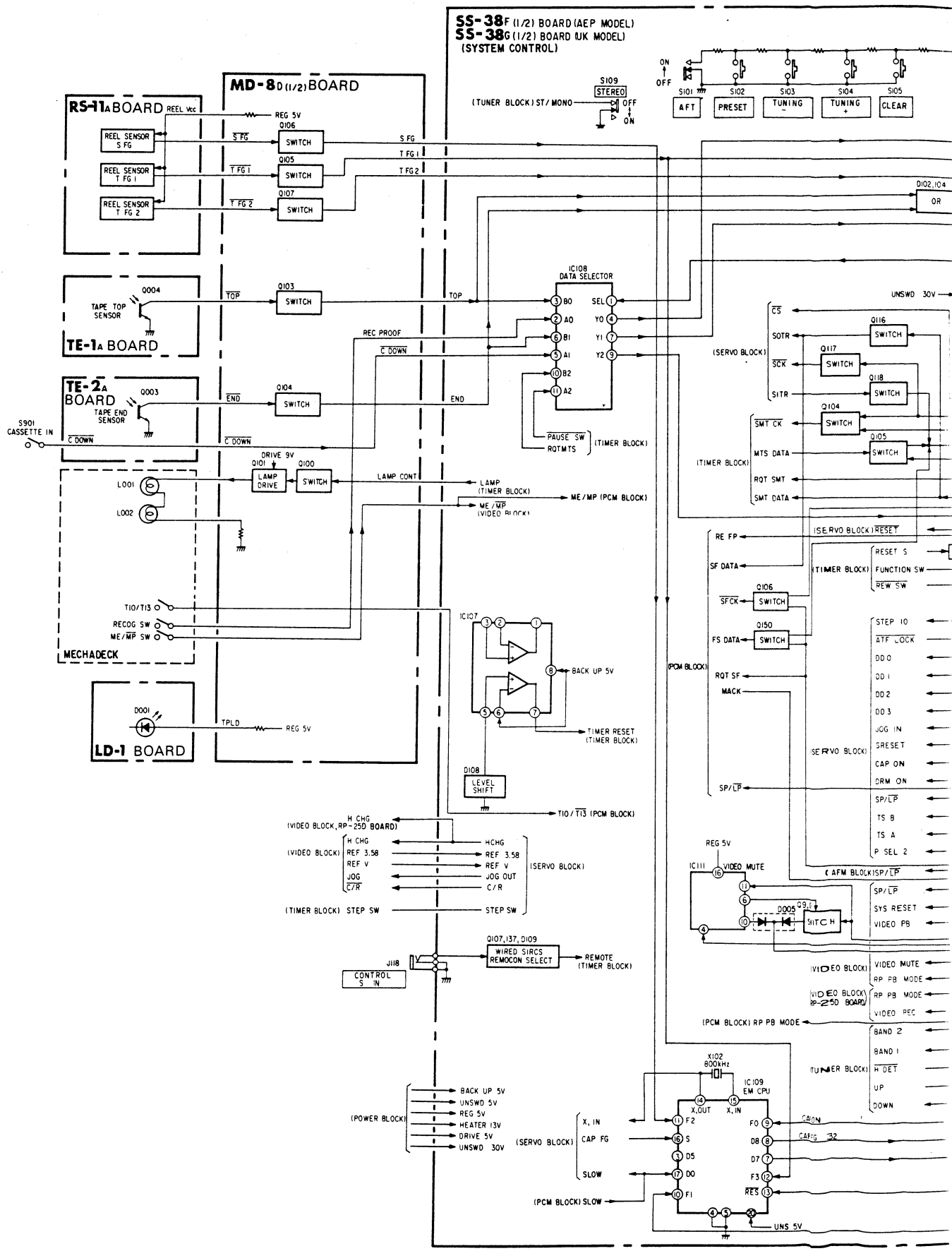
*1 Receiving condition during tuner selecting station
*2 Band output of tuner
*3 Write in/read out control signal and data signal of non-volatile memory for tuner

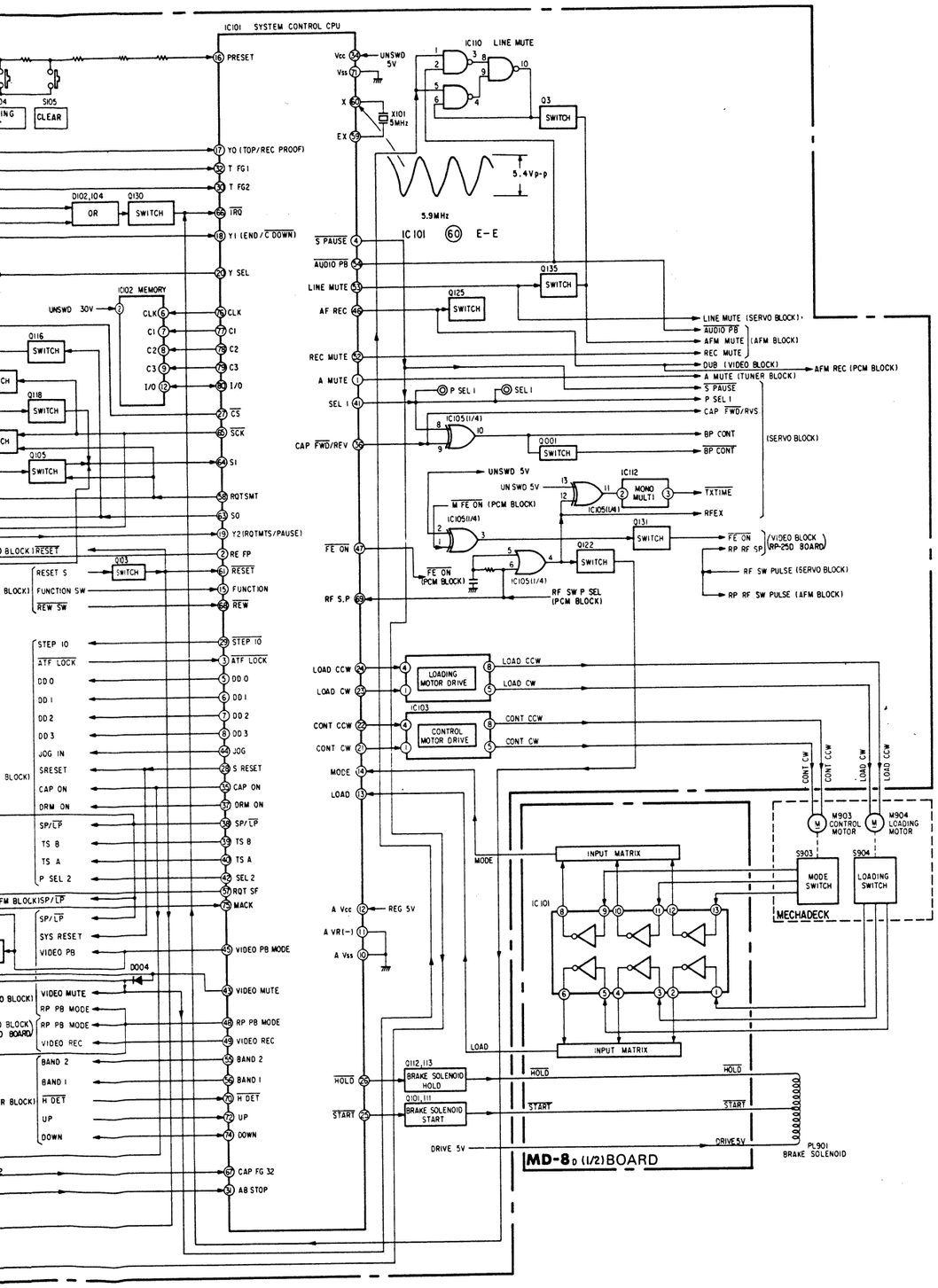
›CK INTERFACE

	FF	REW	CUE	REV	PB PAUSE	REC PAUSE	LOADING	EJECT	DUB	DUB PAUSE

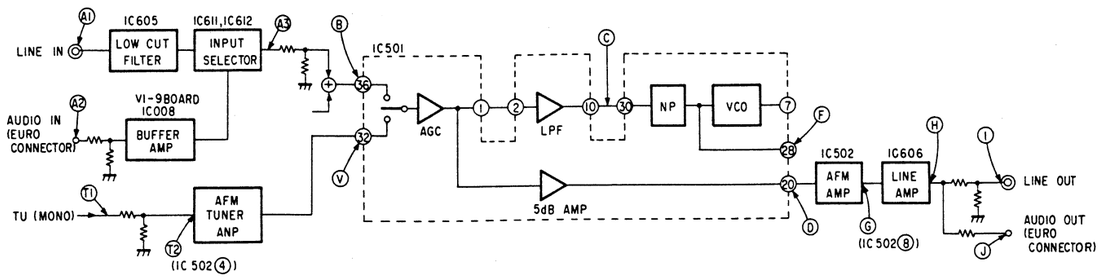
*1 Serial data transport control signal and data signal of system control microcomputer and timer microcomputer

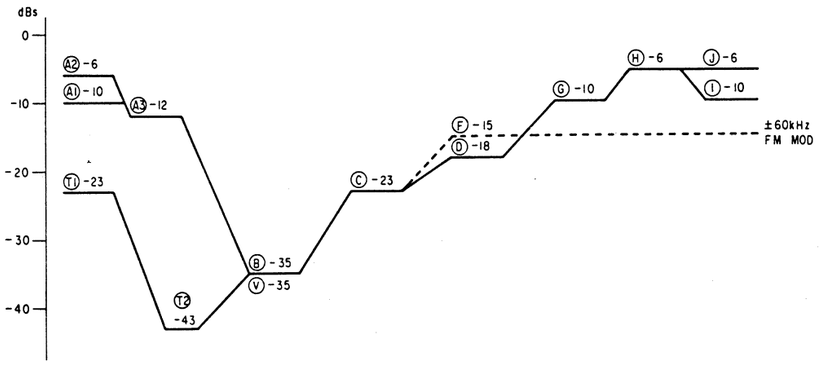
3-14. SYSTEM CONTROL BLOCK DIAGRAM

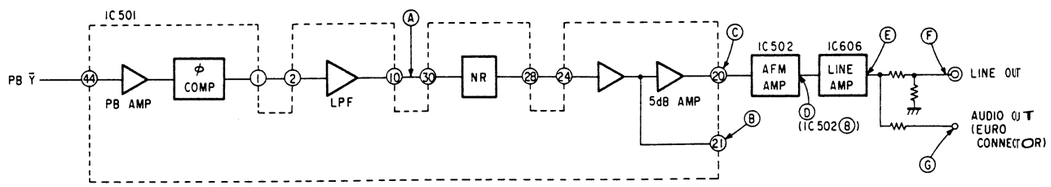


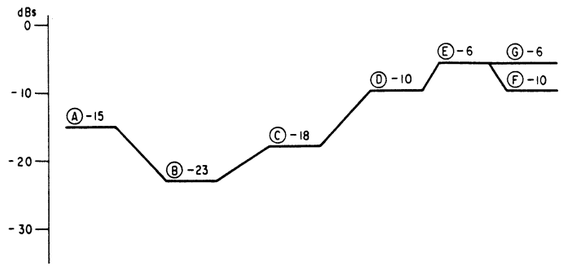


3-15. AUDIO LEVEL DIAGRAM (1)

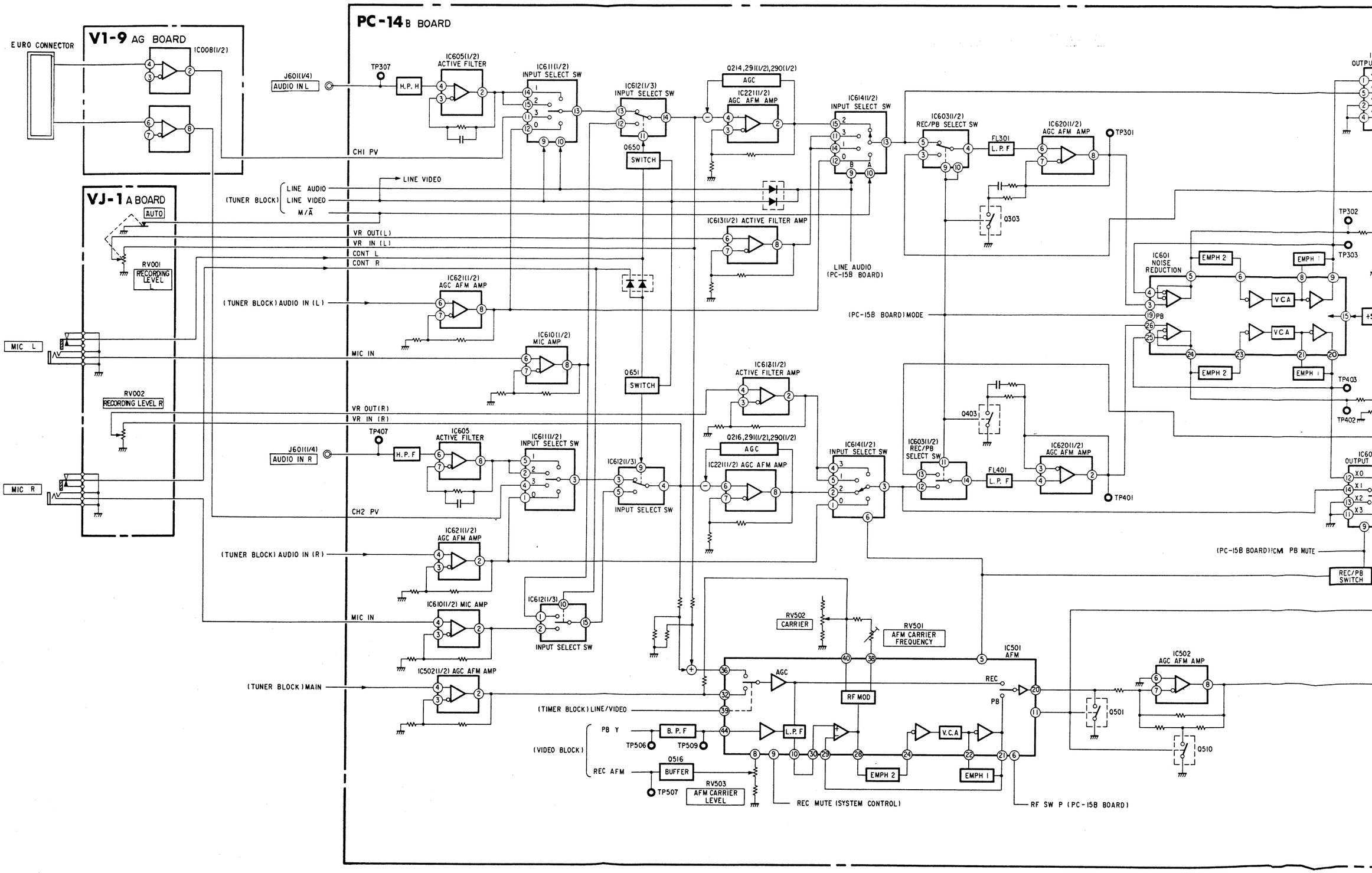


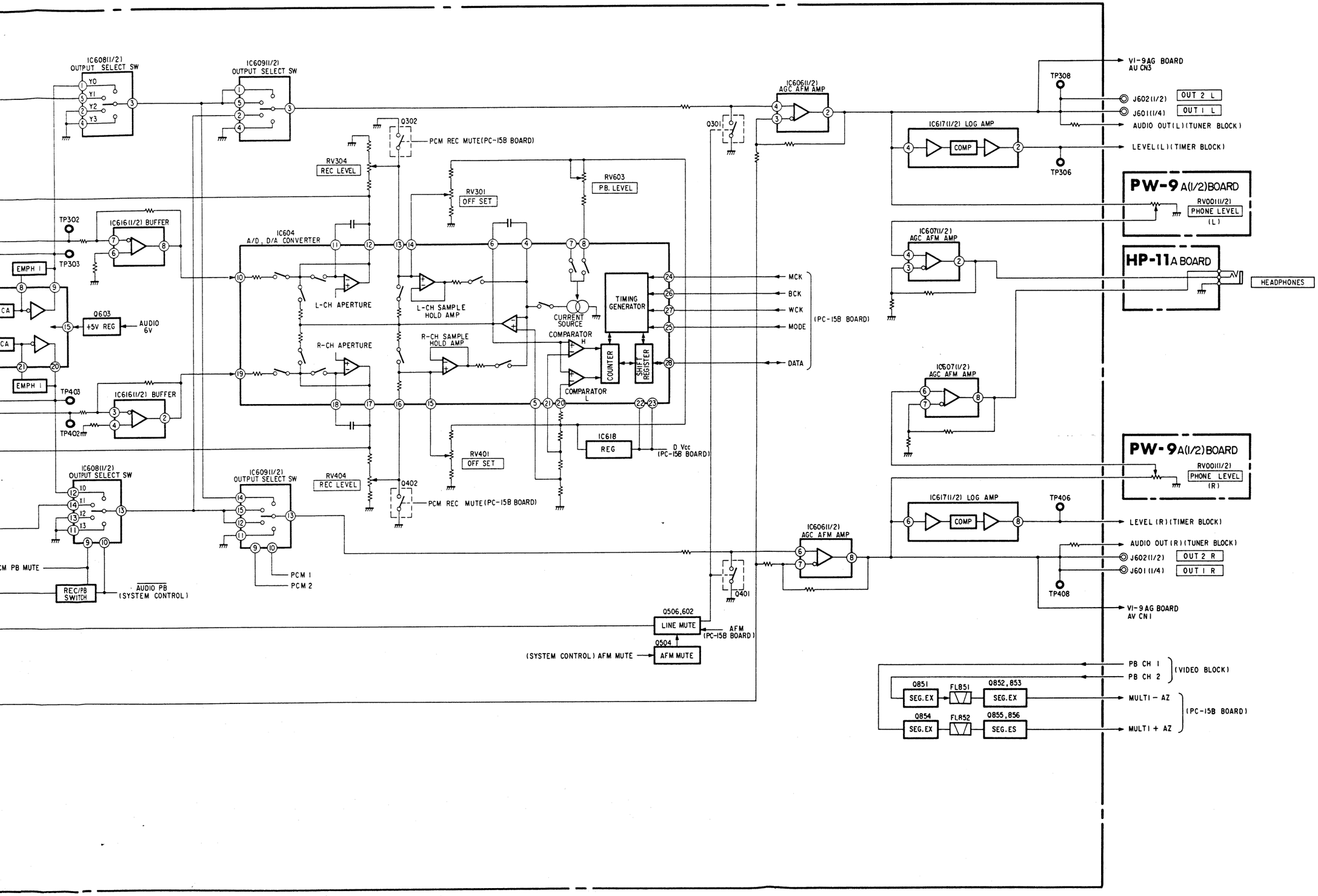




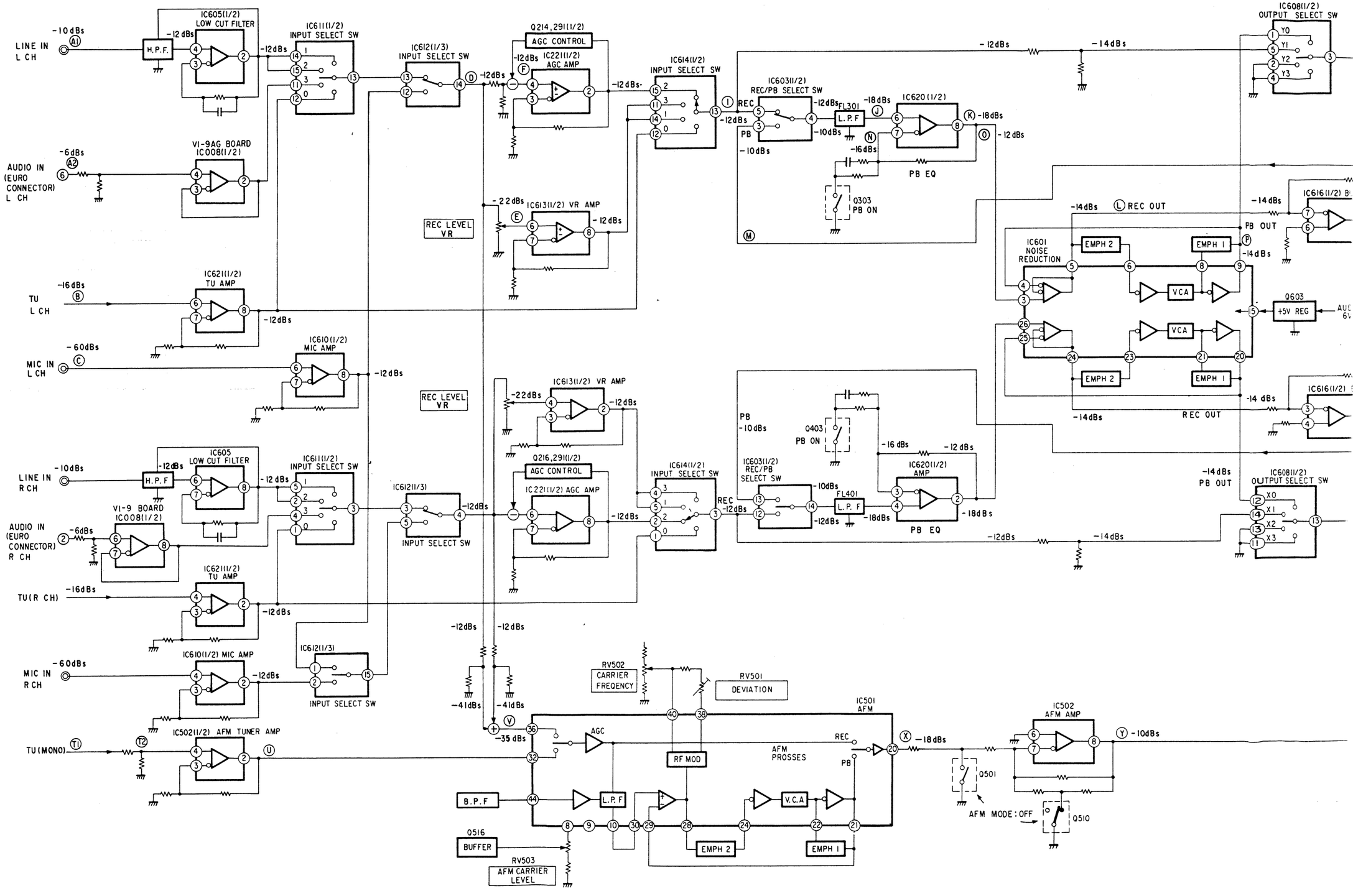


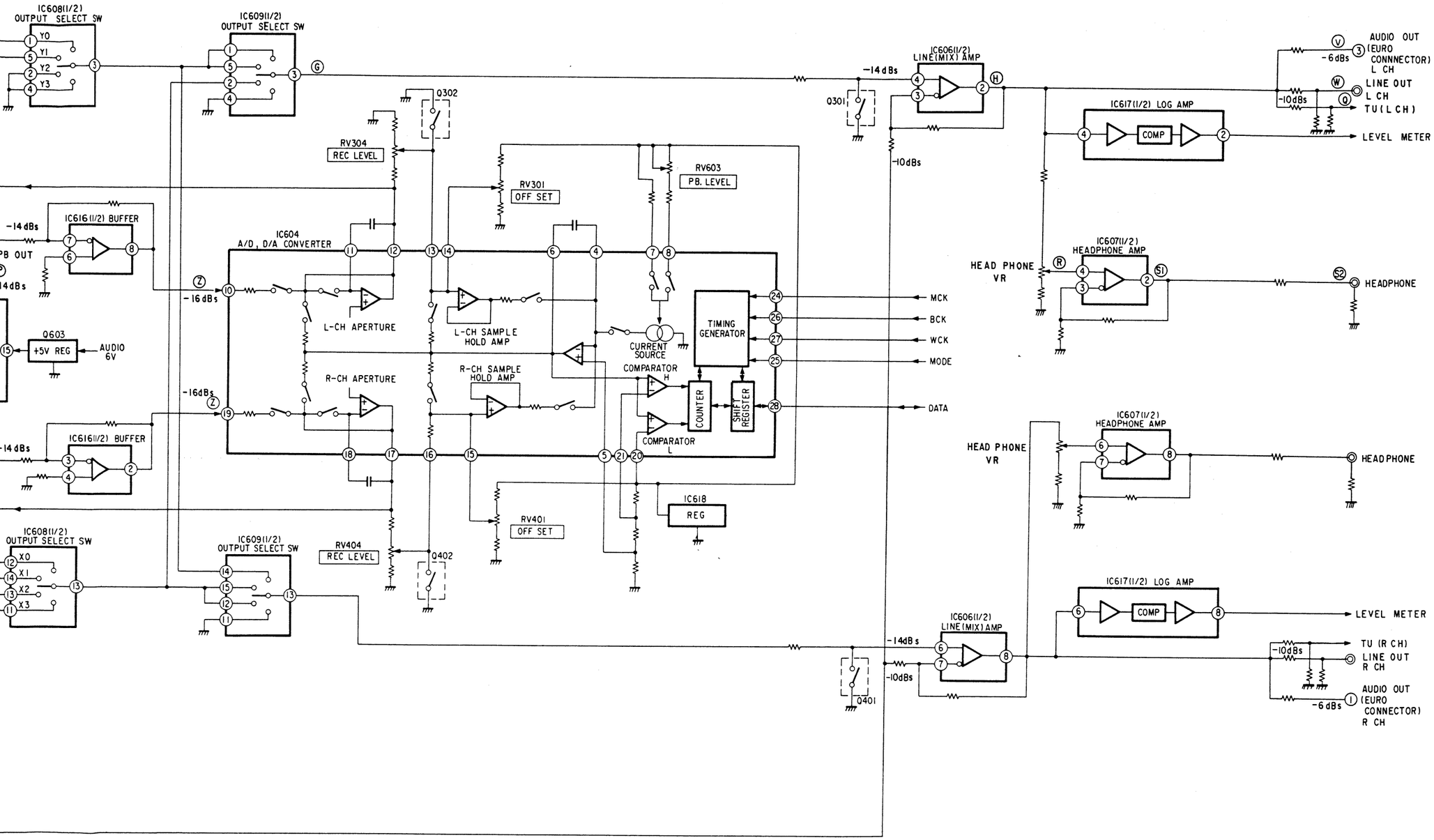
3-16. AUDIO BLOCK DIAGRAM (1)




IC608(1/2) OUTPUT SELECT SW
Y0
Y1
Y2
Y3
IC609(1/2) OUTPUT SELECT SW
Q302
PCM REC MUTE(PC-15B BOARD)
RV304 REC LEVEL
RV301 OFF SET
RV603 P.B. LEVEL
IC606(1/2) AGC AFM AMP
Q301
IC617(1/2) LOG AMP
COMP
TP308
TP306
VI-9AG BOARD AU CN3
J602(1/2)
J601(1/4)
OUT 2 L
OUT 1 L
AUDIO OUT(L)(TUNER BLOCK)
LEVEL(L)(TIMER BLOCK)
PW-9 A(1/2)BOARD
RV001(1/2) PHONE LEVEL (L)
IC607(1/2) AGC AFM AMP
HP-11A BOARD
HEADPHONES
TP302
TP303
IC616(1/2) BUFFER
IC604 A/D, D/A CONVERTER
EMPH 1
Q603
+5V REG
AUDIO 6V
L-CH APERTURE
L-CH SAMPLE HOLD AMP
CURRENT SOURCE
TIMING GENERATOR
R-CH APERTURE
R-CH SAMPLE HOLD AMP
COMPARATOR H
COMPARATOR L
COUNTER
SHIFT REGISTER
MCK
BCK
WCK
MODE
DATA
(PC-15B BOARD)
IC607(1/2) AGC AFM AMP
TP403
TP402
IC616(1/2) BUFFER
EMPH 1
IC618 REG
D Vcc (PC-15B BOARD)
RV401 OFF SET
IC608(1/2) OUTPUT SELECT SW
X0
X1
X2
X3
IC609(1/2) OUTPUT SELECT SW
RV404 REC LEVEL
Q402
PCM REC MUTE(PC-15B BOARD)
PW-9 A(1/2)BOARD
RV001(1/2) PHONE LEVEL (R)
IC617(1/2) LOG AMP
COMP
TP406
LEVEL(R)(TIMER BLOCK)
AUDIO OUT(R)(TUNER BLOCK)
J602(1/2)
J601(1/4)
OUT 2 R
OUT 1 R
TP408
VI-9AG BOARD AV CN1
IC606(1/2) AGC AFM AMP
M PB MUTE
REC/PB SWITCH
AUDIO PB (SYSTEM CONTROL)
PCM 1
PCM 2
Q401
Q506,602
LINE MUTE
AFM (PC-15B BOARD)
Q504
AFM MUTE
(SYSTEM CONTROL) AFM MUTE
PB CH 1
PB CH 2
(VIDEO BLOCK)
Q851
SEG.EX
FL851
Q852,853
SEG.EX
MULTI - AZ
Q854
SEG.EX
FL852
Q855,856
SEG.ES
MULTI + AZ
(PC-15B BOARD)

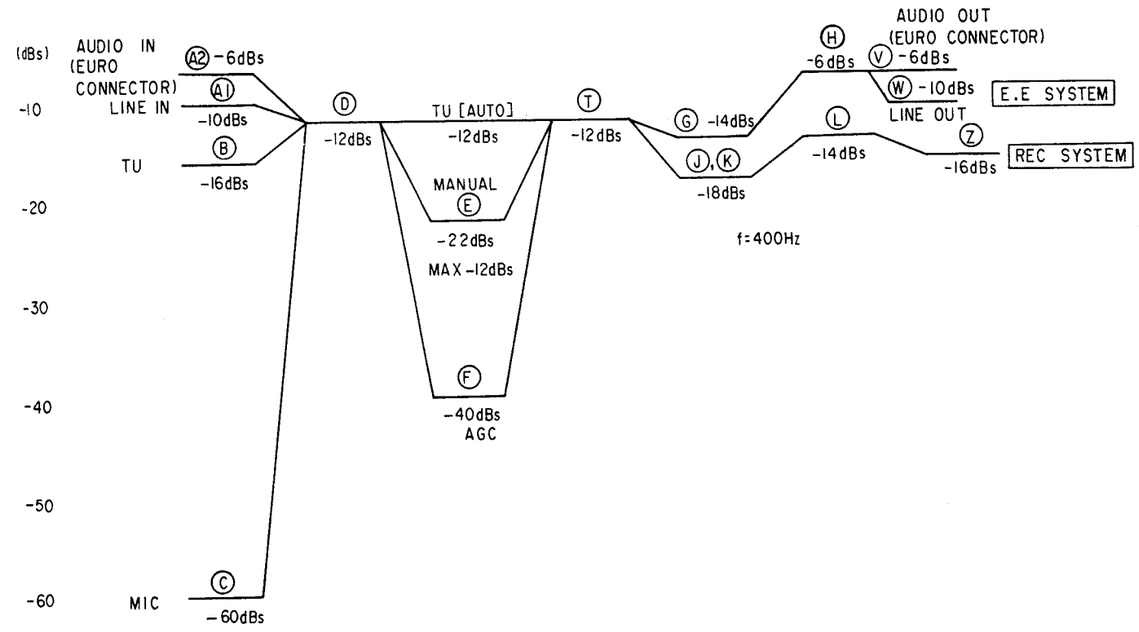
3-17. AUDIO BLOCK DIAGRAM (2)



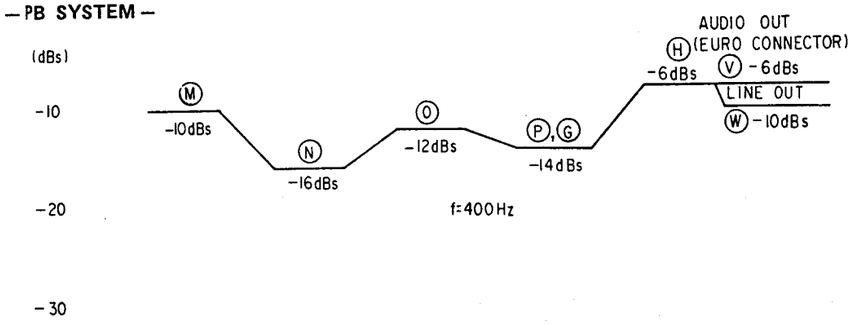

IC608(1/2)
OUTPUT SELECT SW
Y0
Y1
Y2
Y3
IC609(1/2)
OUTPUT SELECT SW
G
Q302
RV304
REC LEVEL
RV301
OFF SET
RV603
PB. LEVEL
IC606(1/2)
LINE(MIX) AMP
-14dBs
Q301
-10dBs
IC617(1/2) LOG AMP
COMP
LEVEL METER
AUDIO OUT
(EURO
CONNNECTOR)
L CH
-6dBs
LINE OUT
L CH
TU(L CH)
-10dBs
IC607(1/2)
HEADPHONE AMP
HEAD PHONE
VR
HEADPHONE
IC616(1/2) BUFFER
-14dBs
PB OUT
IC604
A/D, D/A CONVERTER
-16dBs
L-CH APERTURE
L-CH SAMPLE
HOLD AMP
CURRENT
SOURCE
TIMING
GENERATOR
MCK
BCK
WCK
MODE
DATA
Q603
+5V REG
AUDIO
6V
R-CH APERTURE
R-CH SAMPLE
HOLD AMP
COMPARATOR
H
COMPARATOR
L
COUNTER
SHIFT
REGISTER
IC618
REG
RV401
OFF SET
IC608(1/2)
OUTPUT SELECT SW
X0
X1
X2
X3
IC609(1/2)
OUTPUT SELECT SW
RV404
REC LEVEL
Q402
Q401
IC606(1/2)
LINE(MIX) AMP
-14dBs
-10dBs
IC617(1/2) LOG AMP
COMP
LEVEL METER
TU (R CH)
LINE OUT
R CH
-10dBs
AUDIO OUT
(EURO
CONNECTOR)
R CH
-6dBs

3-18. AUDIO LEVEL DIAGRAM (2)

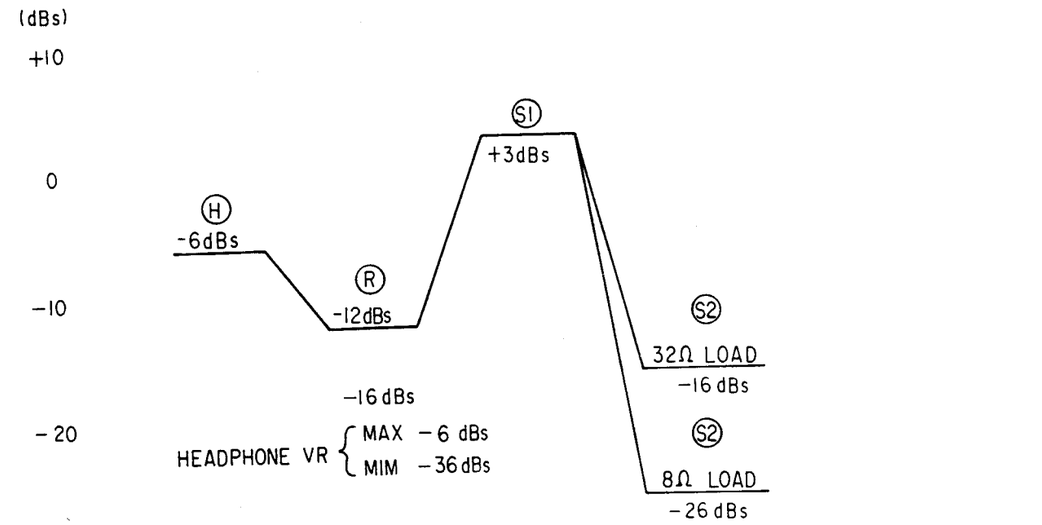
PCM
— REC SYSTEM —



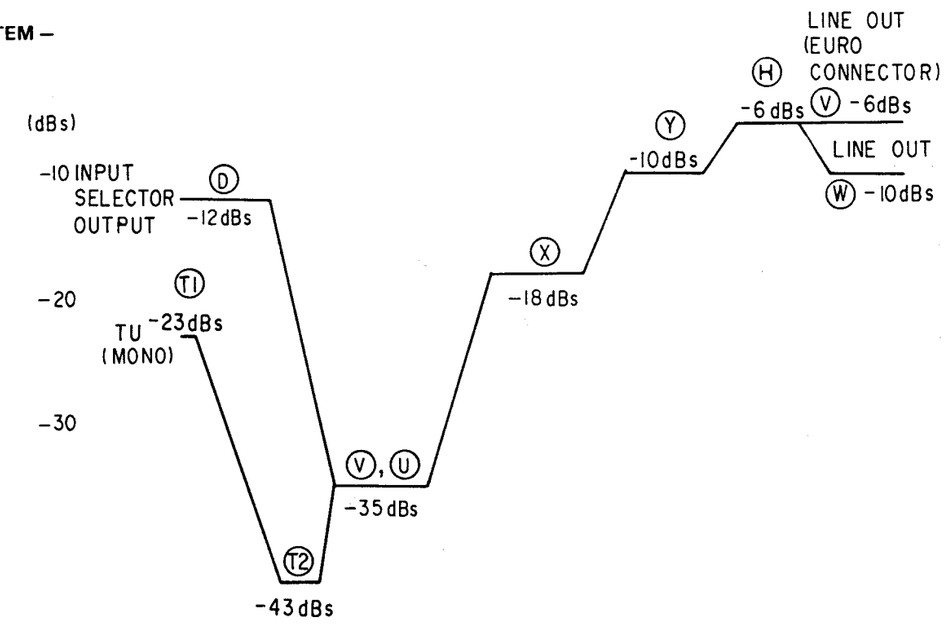
PCM
— PB SYSTEM —



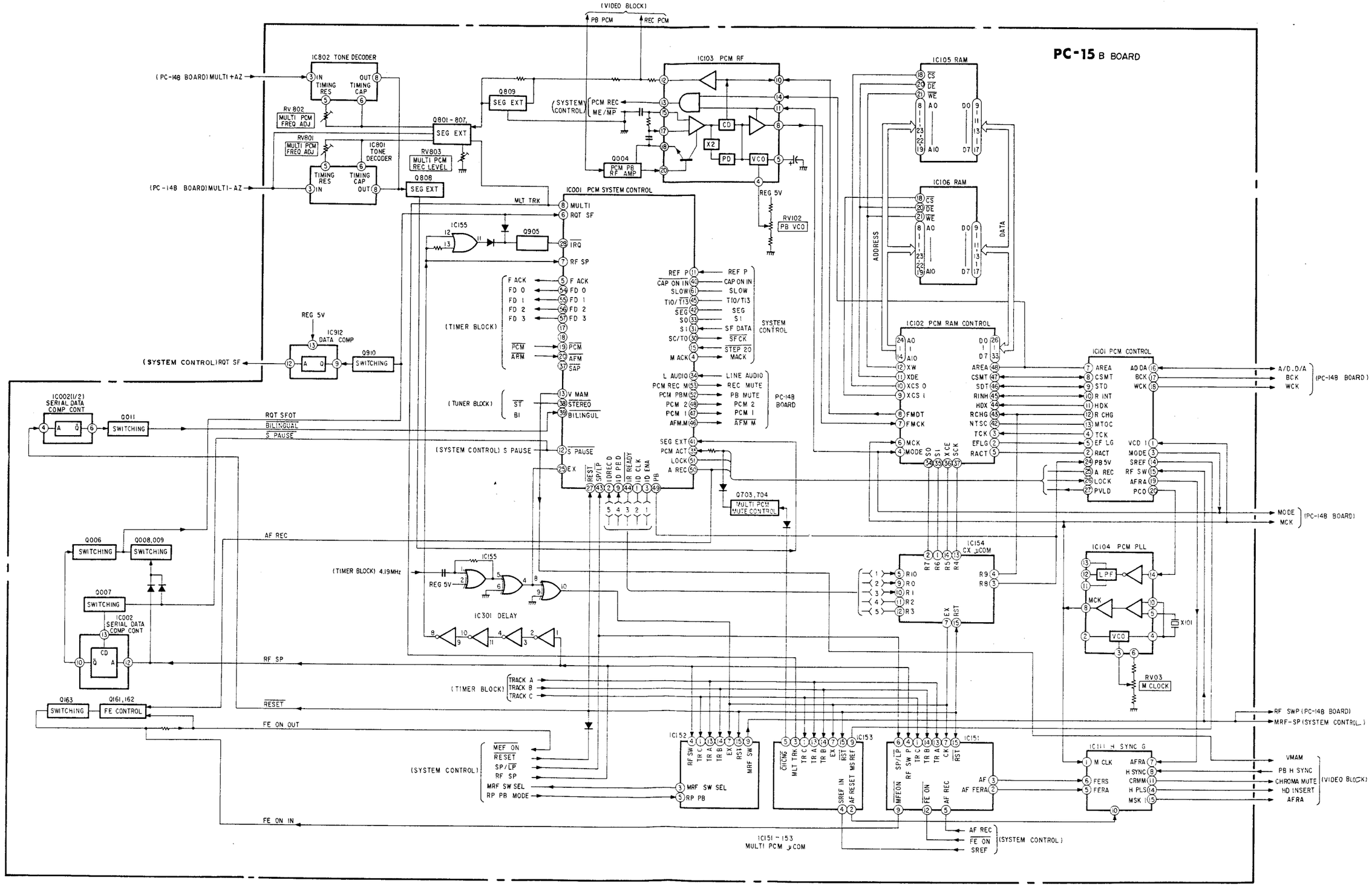
HEADPHONE STANDARD LEVEL



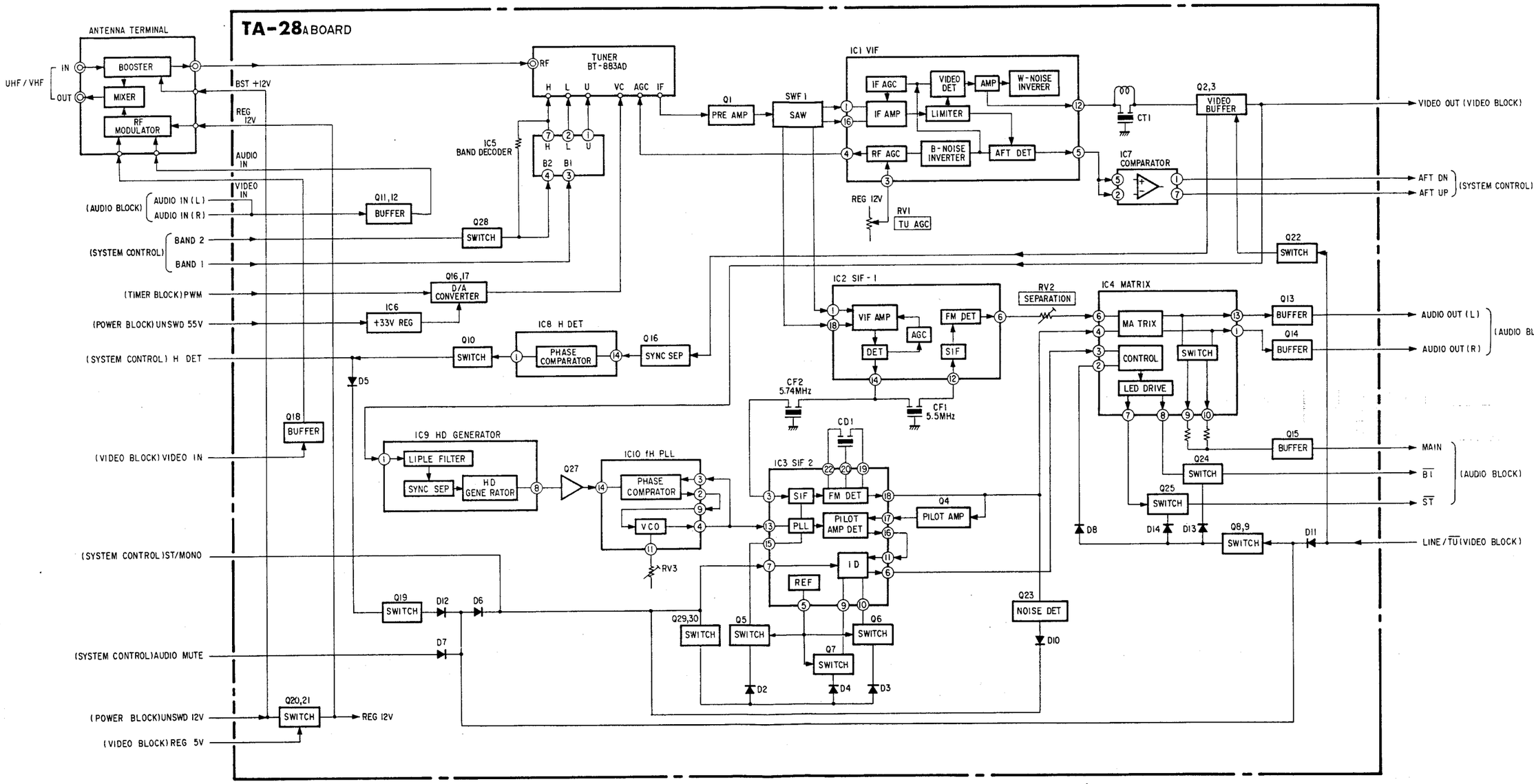
AFM
— REC/PB SYSTEM —



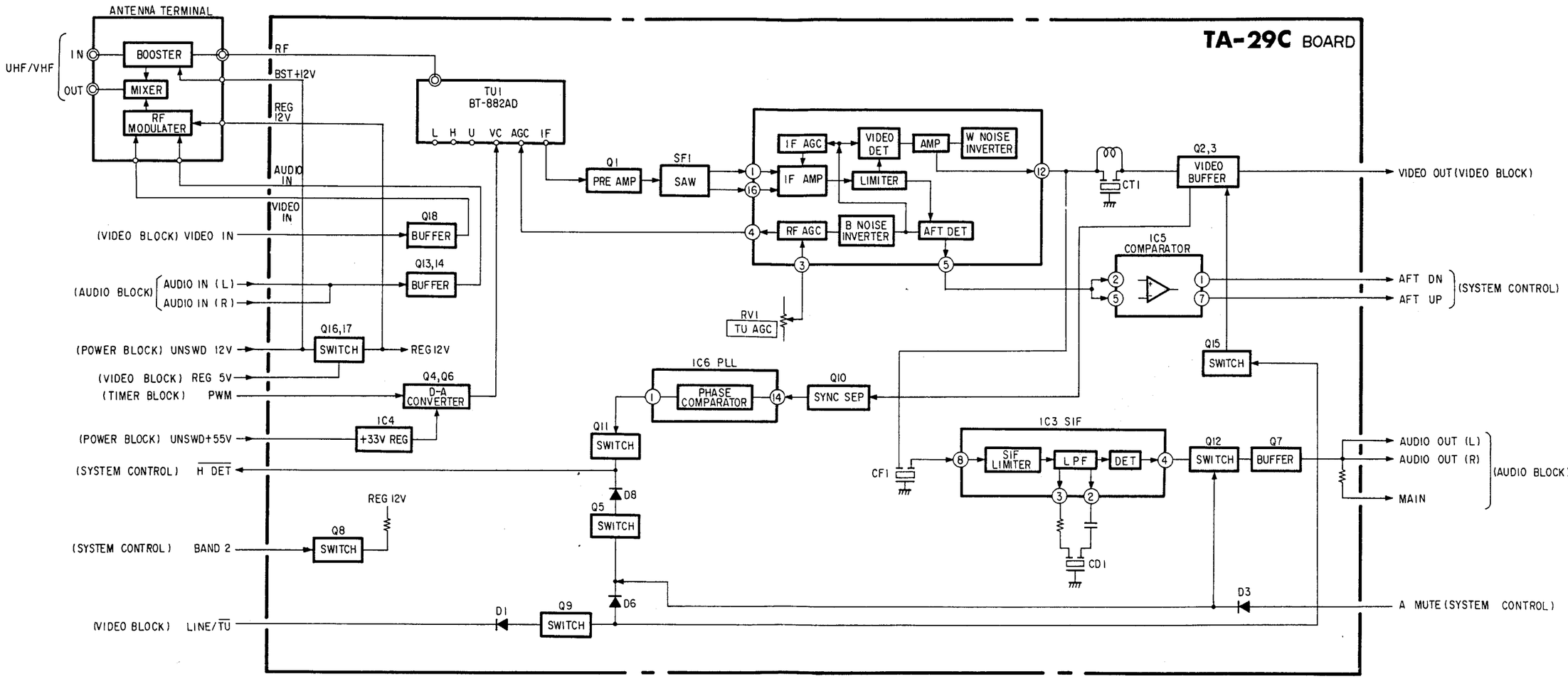
3-19. AUDIO BLOCK DIAGRAM (3)

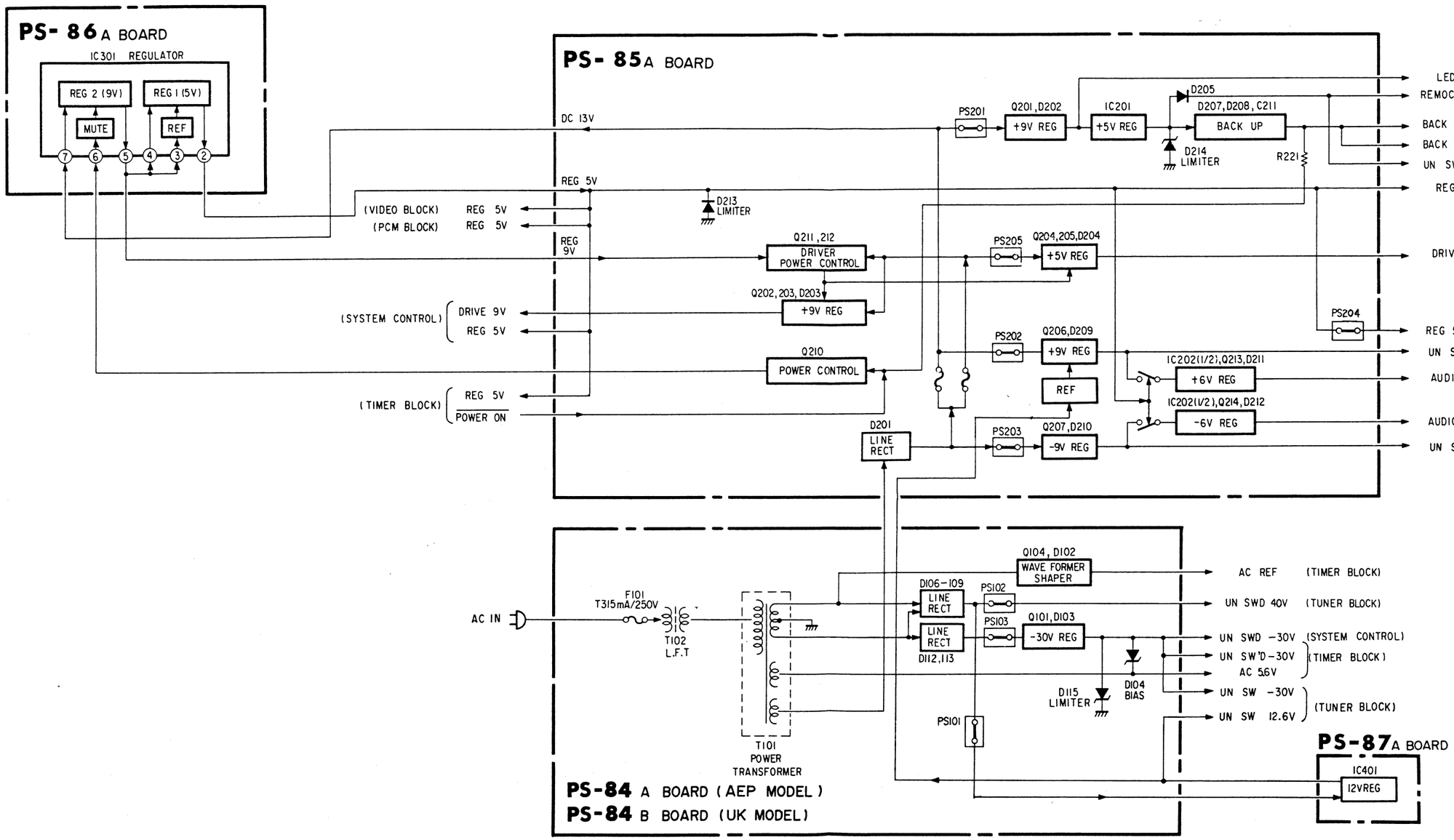


3-20. TUNER BLOCK DIAGRAM (AEP MODEL)

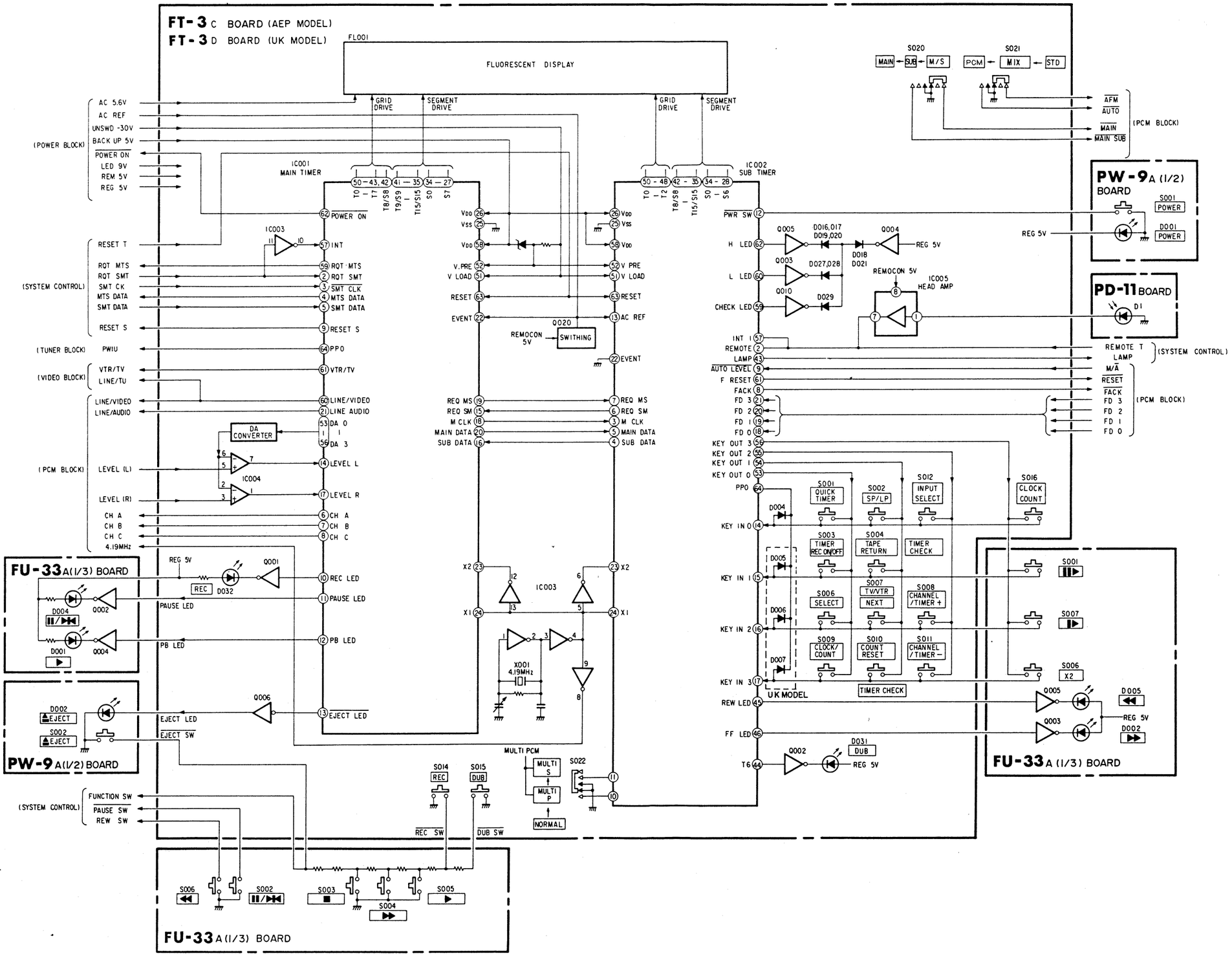


3-21. TUNER BLOCK DIAGRAM (UK MODEL)



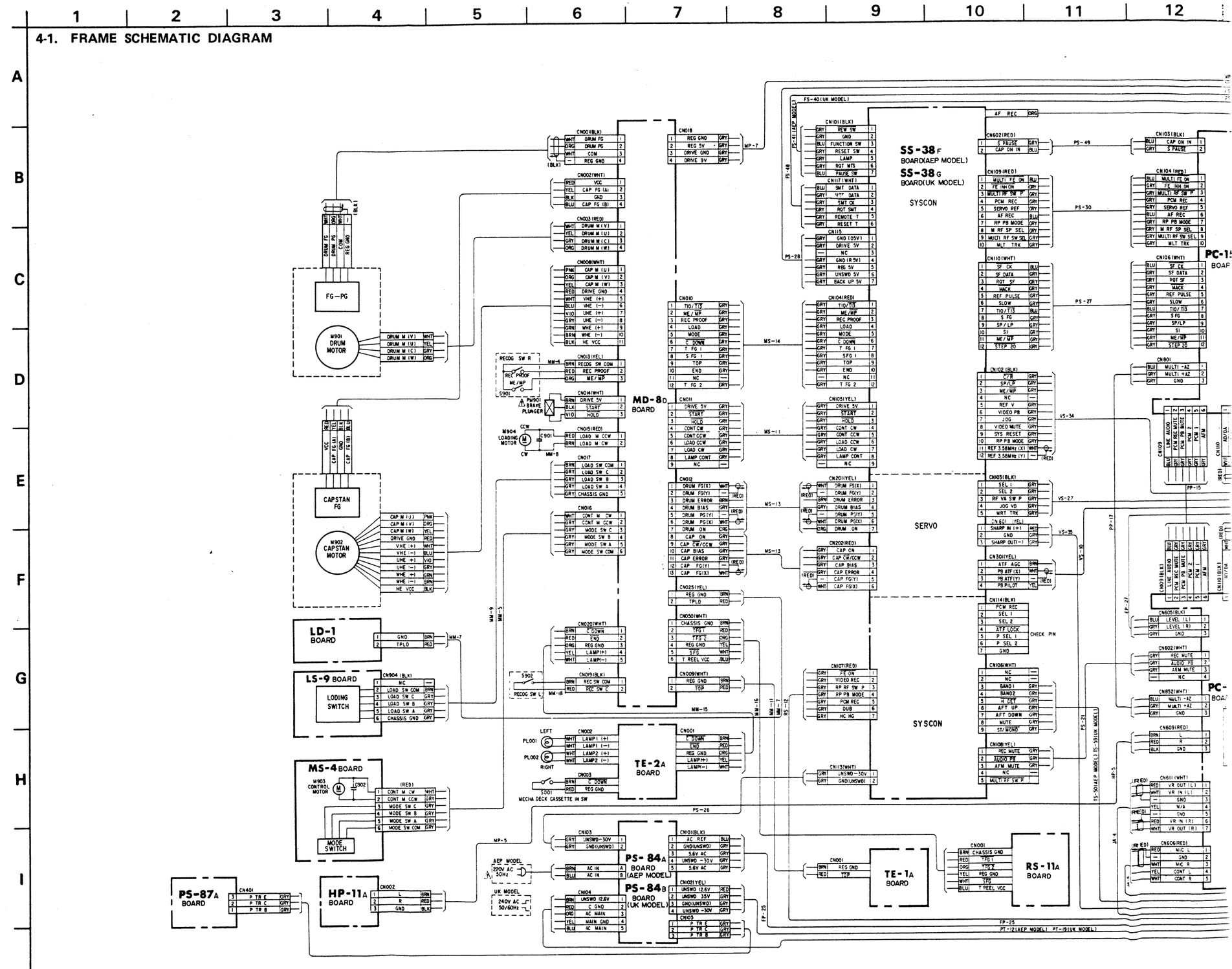

PS-86 A BOARD
IC301 REGULATOR
REG 2 (9V)
REG 1 (5V)
MUTE
REF
7
6
5
4
3
2
PS-85 A BOARD
DC 13V
REG 5V
(VIDEO BLOCK) REG 5V
(PCM BLOCK) REG 5V
REG 9V
D213 LIMITER
PS201
Q201, D202
+9V REG
IC201
+5V REG
D205
D207, D208, C211
BACK UP
D214 LIMITER
R221
LED 9V
REMOCON 5V
BACK UP 5V
(TIMER BLOCK)
BACK UP 5V
UN SW'D 5V
REG 5V
(SYSTEM CONTROL)
Q211, 212
DRIVER POWER CONTROL
PS205
Q204, 205, D204
+5V REG
DRIVE 5V
Q202, 203, D203
+9V REG
(SYSTEM CONTROL) DRIVE 9V
REG 5V
PS204
REG 5V
UN SW 9V
PS202
Q206, D209
+9V REG
Q210
POWER CONTROL
IC202(1/2), Q213, D211
+6V REG
AUDIO 6V
(PCM BLOCK)
REF
(TIMER BLOCK) REG 5V
POWER ON
IC202(1/2), Q214, D212
-6V REG
AUDIO -6V
D201
LINE RECT
PS203
Q207, D210
-9V REG
UN SW 9V
Q104, D102
WAVE FORMER SHAPER
AC REF (TIMER BLOCK)
AC IN
F101
T315mA/250V
T102
L.F.T
D106-109
LINE RECT
PS102
UN SWD 40V (TUNER BLOCK)
PS103
Q101, D103
-30V REG
D112, 113
UN SWD -30V (SYSTEM CONTROL)
UN SW'D -30V
AC 5.6V
(TIMER BLOCK)
D104 BIAS
D115 LIMITER
UN SW -30V
UN SW 12.6V
(TUNER BLOCK)
PS101
T101
POWER TRANSFORMER
PS-87 A BOARD
IC401
12VREG
PS-84 A BOARD (AEP MODEL)
PS-84 B BOARD (UK MODEL)

3-23. TIMER BLOCK DIAGRAM



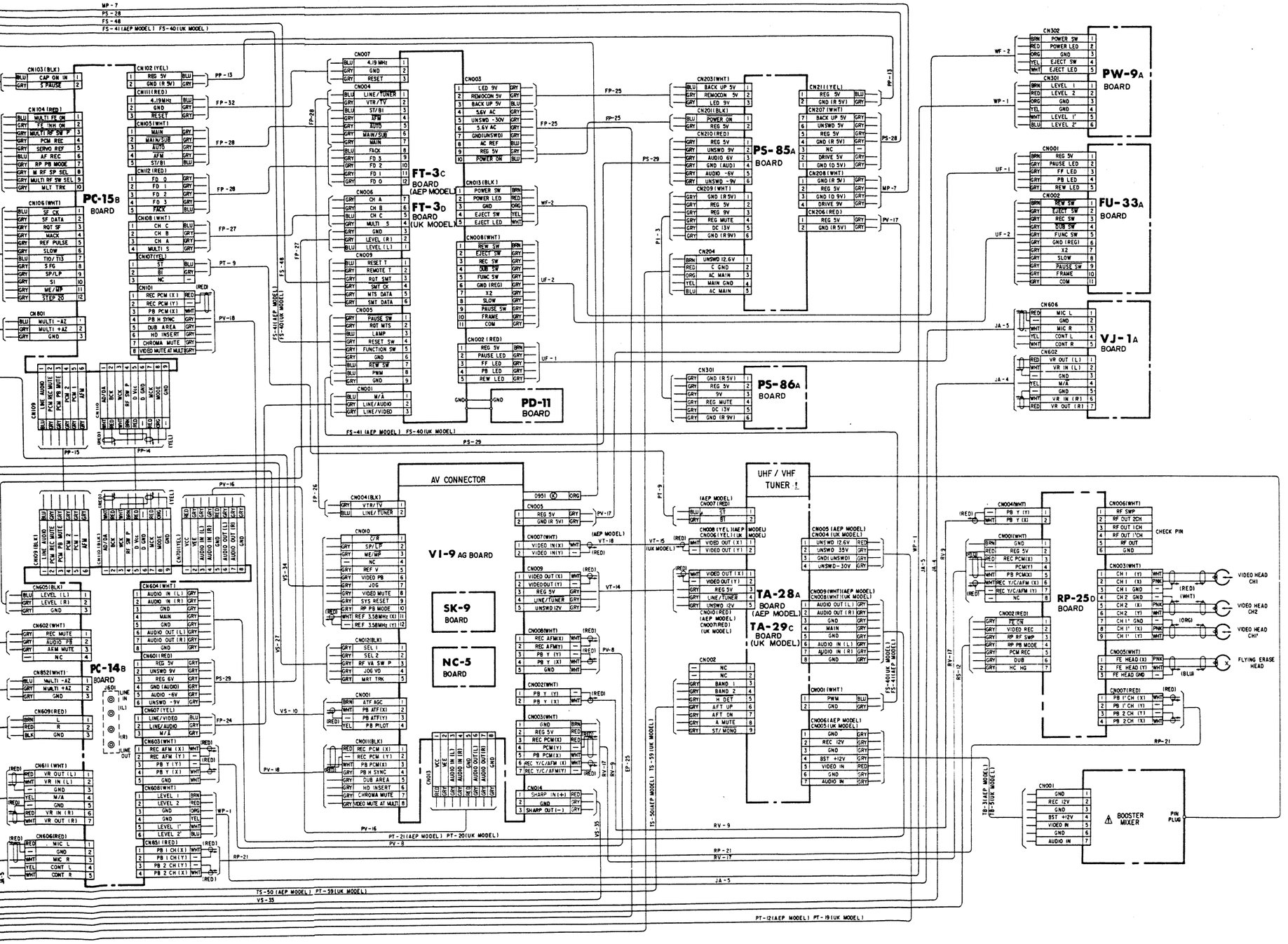
SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM



PS-84A BOARD ..... AEP MODEL
PS-84B BOARD ..... UK MODEL

SS-38F BOARD ..... AEP MODEL
SS-38G BOARD ..... UK MODEL



FT-3C BOARD .....AEP MODEL
FT-3D BOARD .....UK MODEL

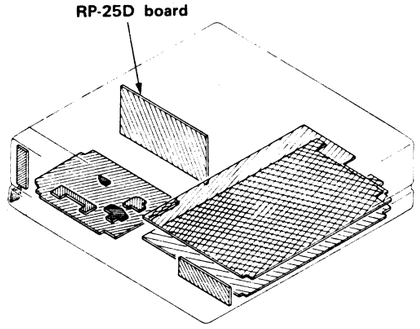
TA-28A BOARD .....AEP MODEL
TA-29C BOARD ..... UK MODEL

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

4-2. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

- ○— : parts extracted from the component side.
- ●— : parts extracted from the conductor side.
- : conductor side pattern.
- : 5 + pattern.
- Digital transistor (RP-25D : Q207, 208, 214, 215) transistor with resistors.
  Refer to the RP-25D board schematic diagram for digital transistor.

RP-25D board

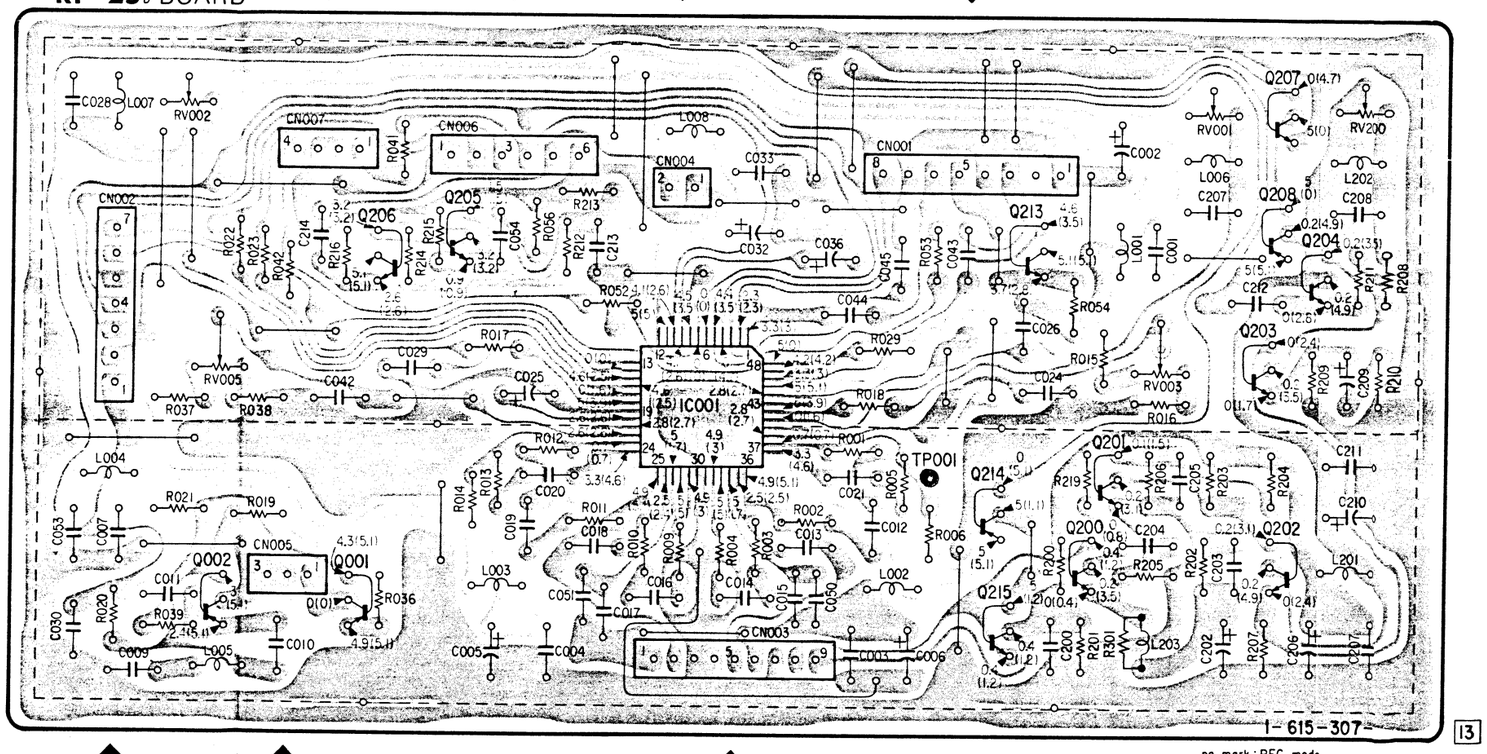


RP-25D (HEAD AMP/FLYING ERASE) PRINTED WIRING BOARD

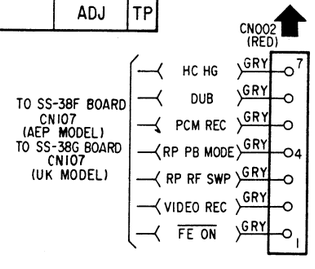
– Ref. No. RP-25D BOARD: 2000 series –

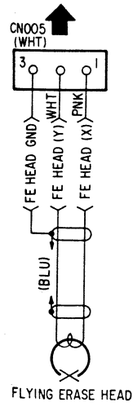
Q,IC	ADJ	TP
207	RV001 RV200 RV002	
206 205 213 208		
204		
	RV005 RV003	
203 IC001		
201 214		001
200 202		
002,001		
215		
Q,IC	ADJ	TP

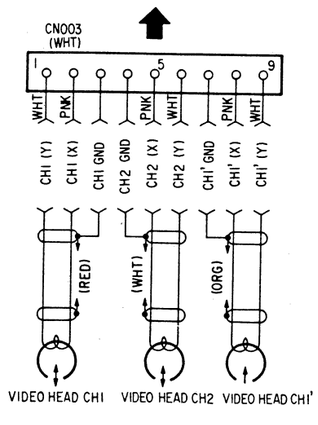
RP-25D BOARD



no mark : REC mode
( ) : PB mode

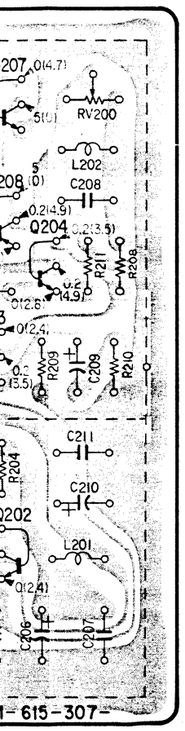


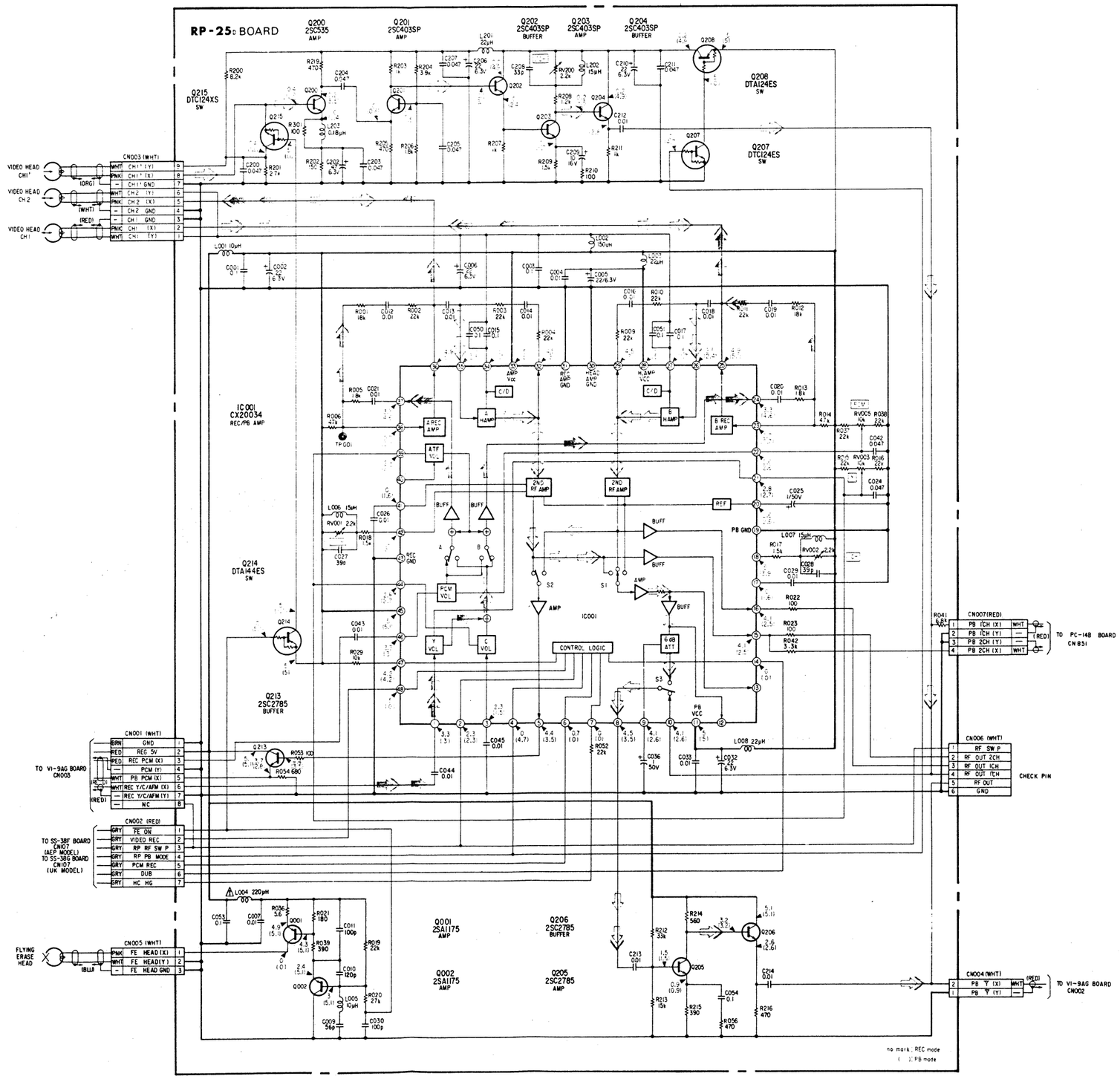




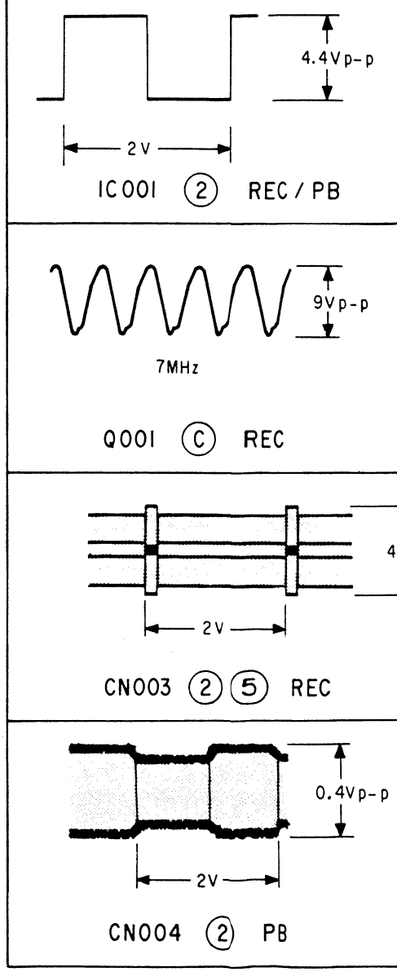
RP-25D (HEAD AMP/FLYING ERASE) SCHEMATIC DIAGRAM

– Ref. No. RP-25D BOARD: 2000 series –



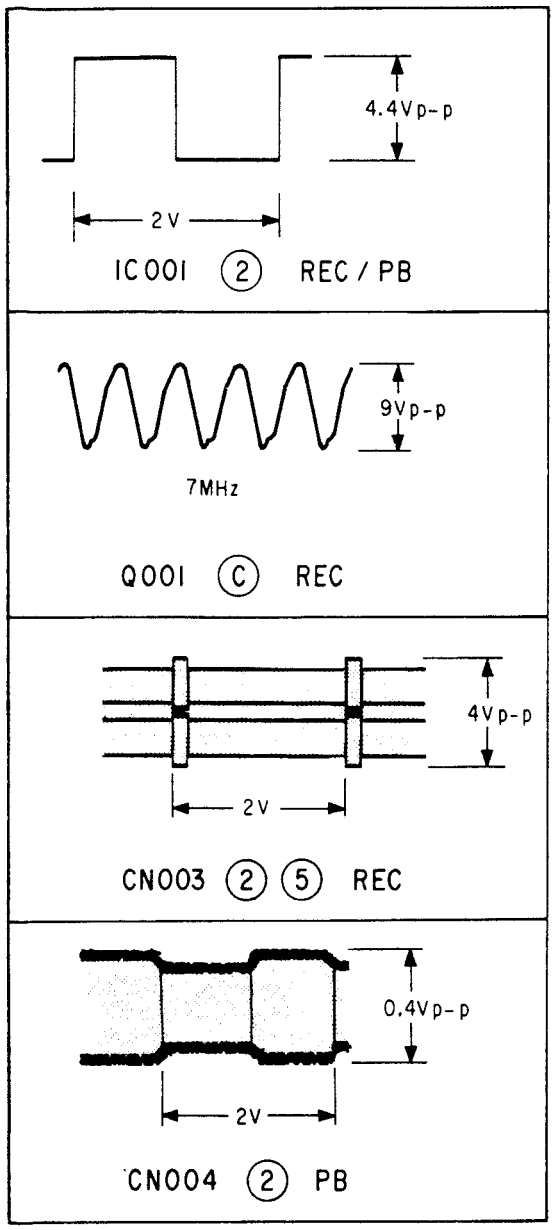


RP-25D BOARD



11

RP-25D BOARD



- All capacitors are in μF unless otherwise noted, pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/6W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ.
- All variable and semi-fixed resistors have characteristics curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- : panel disignation.
- : adjustment for repair.
- : B + bus.
- : B — bus.
- The voltage value is a reference value between the grounding when the color bar signal is received from a color bar generator.
- All voltage are dc measured with a VOM (10MΩ)

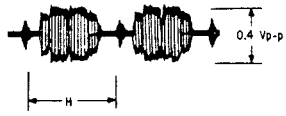
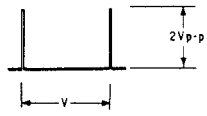
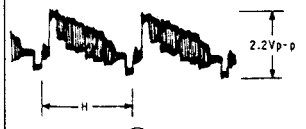
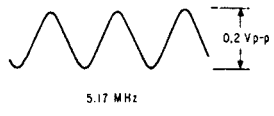
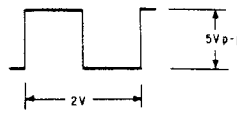
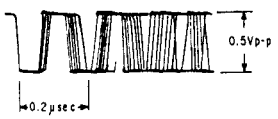
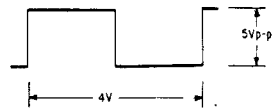
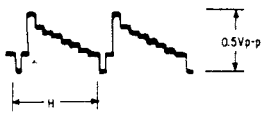
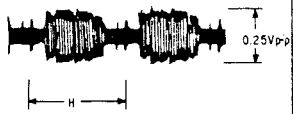
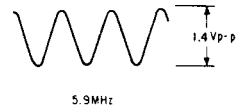
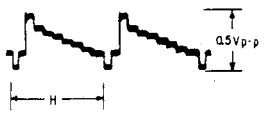
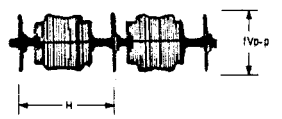
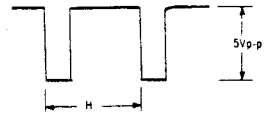
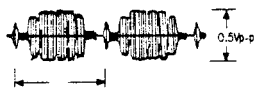
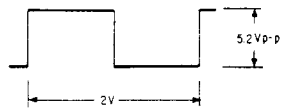
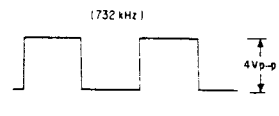
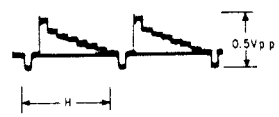
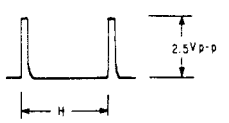
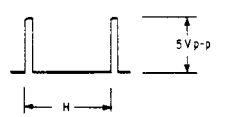
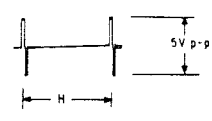
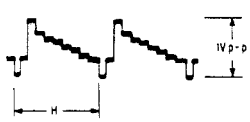
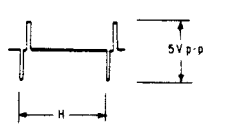
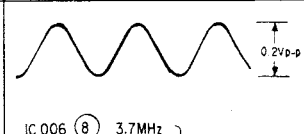
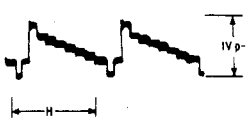
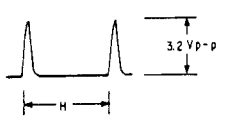
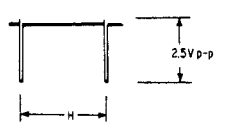
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

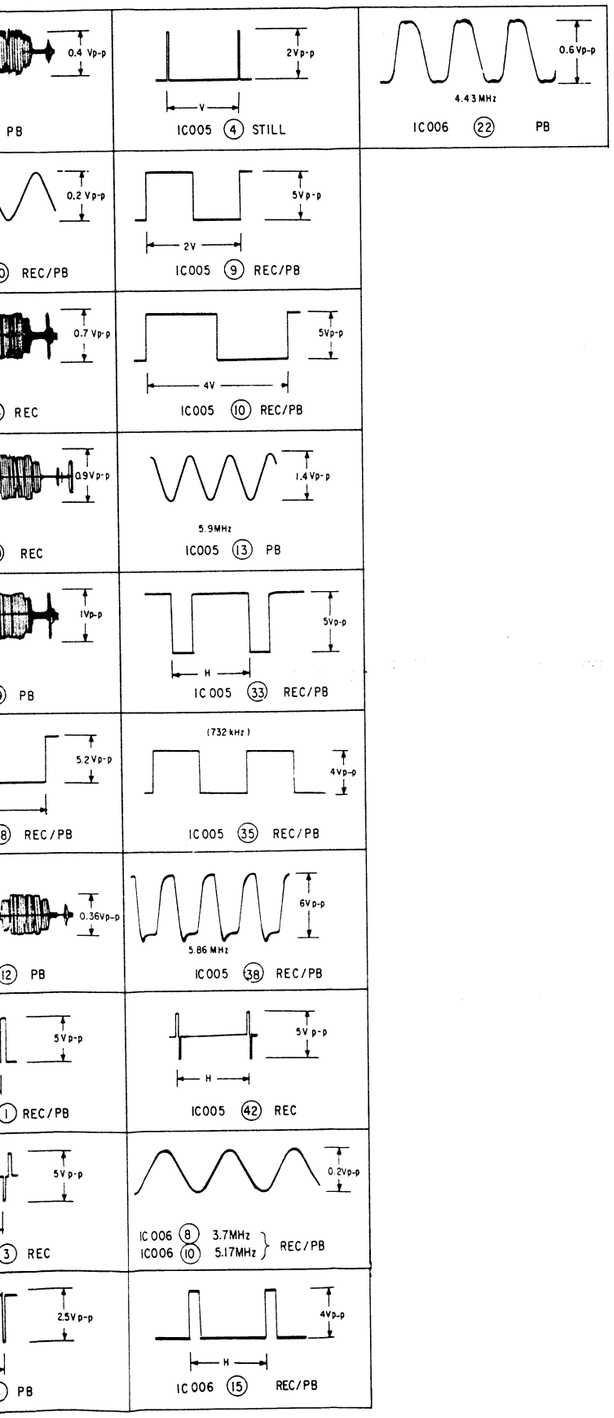
When indicating parts by reference number, please include the board name.

- **Signal path**

:REC Y & CHROMA SIGNAL
:PB Y & CHROMA SIGNAL
:REC AUDIO SIGNAL
:PB AUDIO SIGNAL

VI-9 AG BOARD

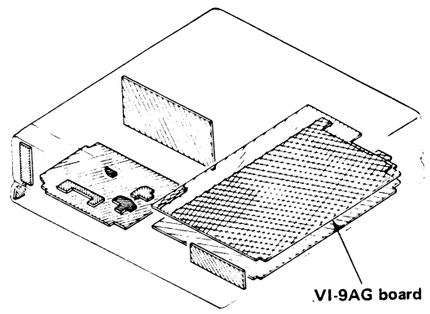
 IC001 (6) PB	 IC002 (16) PB	 IC003 (16) PB	 IC005 (4) STILL	 IC006 (22)
 IC001 (10) PB	 IC002 (18) REC	 IC003 (30) REC/PB	 IC005 (9) REC/PB	
 IC001 (15) REC	 IC002 (28) REC	 IC003 (34) REC	 IC005 (10) REC/PB	
 IC001 (31) REC	 IC002 (29) PB	 IC003 (39) REC	 IC005 (13) PB	
 IC001 (31) PB	 IC002 (36) REC	 IC003 (39) PB	 IC005 (33) REC/PB	
 IC001 (34) PB	 IC002 (36) PB	 IC003 (48) REC/PB	 IC005 (35) REC/PB	
 IC001 (40) REC	 IC002 (38) PB	 IC004 (12) PB	 IC005 (38) REC/PB	
 IC001 (44) REC/PB	 IC002 (44) PB	 IC005 (1) REC/PB	 IC005 (42) REC	
 IC002 (12) REC	 IC003 (8) REC/PB	 IC005 (3) REC	 IC006 (8) 3.7MHz IC006 (10) 5.17MHz } REC/PB	
 IC002 (12) PB	 IC003 (14) REC/PB	 IC005 (3) PB	IC006 (15) REC/PB	



- All capacitors are in μF unless otherwise noted, pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/6W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ.
- All variable and semi-fixed resistors have characteristics curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- : panel disignation.
- : adjustment for repair.
- ▬▬ : B + bus.
- ▬ ▬ ▬ : B − bus.
- The voltage value is a reference value between the grounding when the color bar signal is received from a color bar generator.
- All voltage are dc measured with a VOM (10MΩ)

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

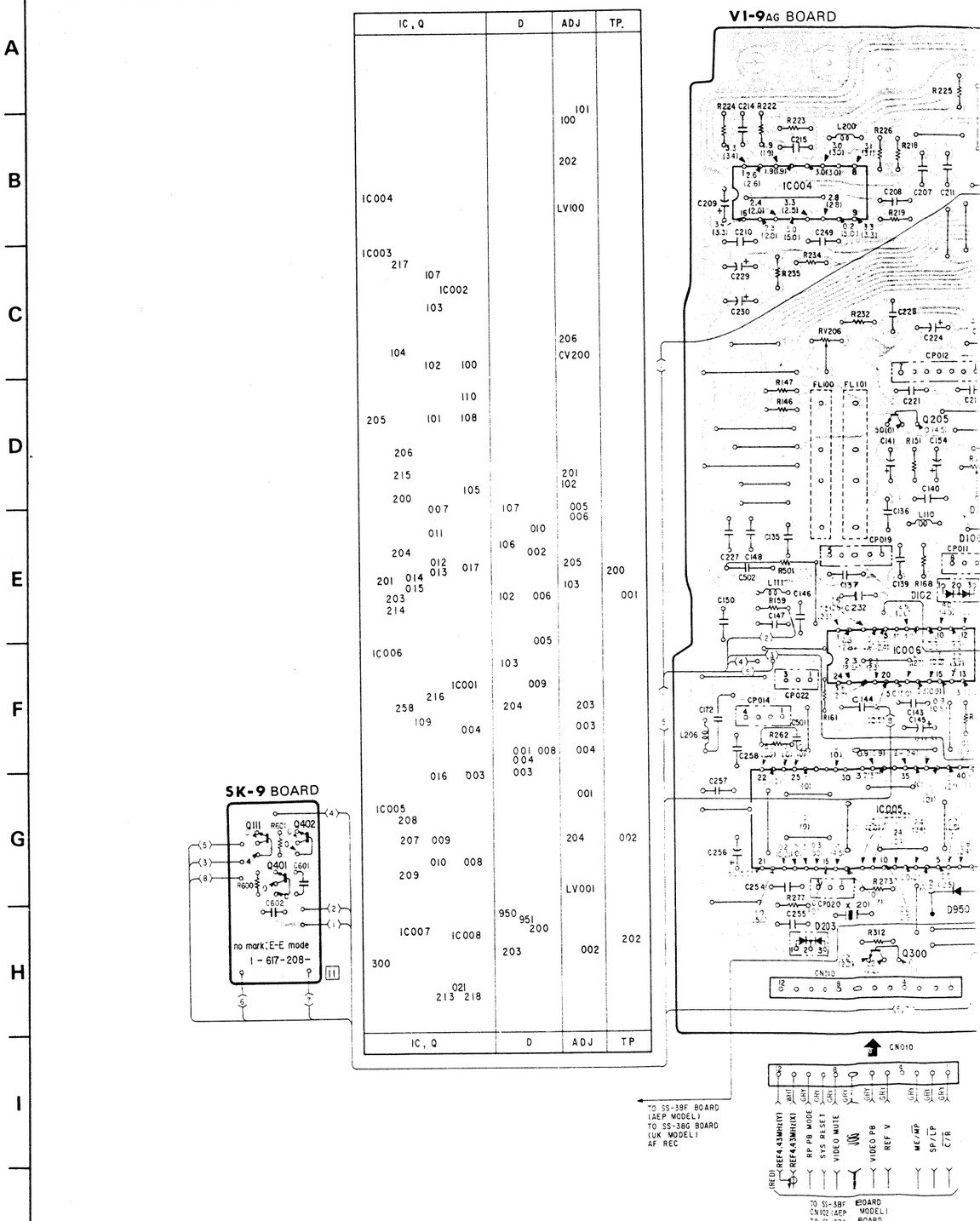
When indicating parts by reference number, please include the board name.



- ○— : parts extracted from the component side.
- ●— : parts extracted from the conductor side.
- : conductor side pattern.
- : B + pattern.

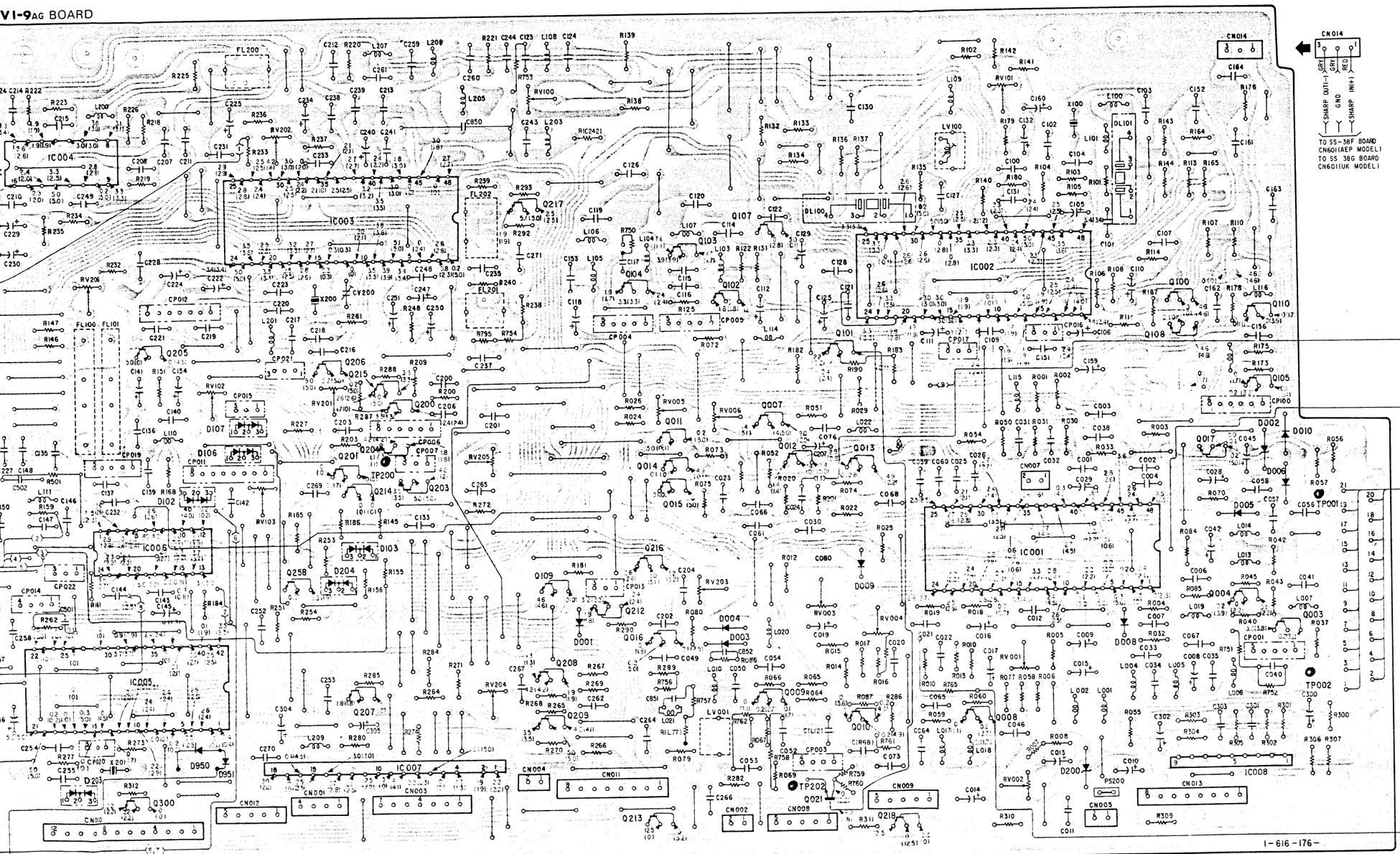
- Digital transistor (VI-9AG: Q002, 011, 014, 015, 017, 021, 100, 101, 107, 108, 109, 111, 201, 205, 207, 213, 214, 218, 258, 300, 401) transistor with resistors. Refer to the VI-9AG board schematic diagram for digital transistor.

– Ref. No. VI-9AG BOARD: 1000 series, SK-9 BOARD, NC-5 BOARD: 5000 series –



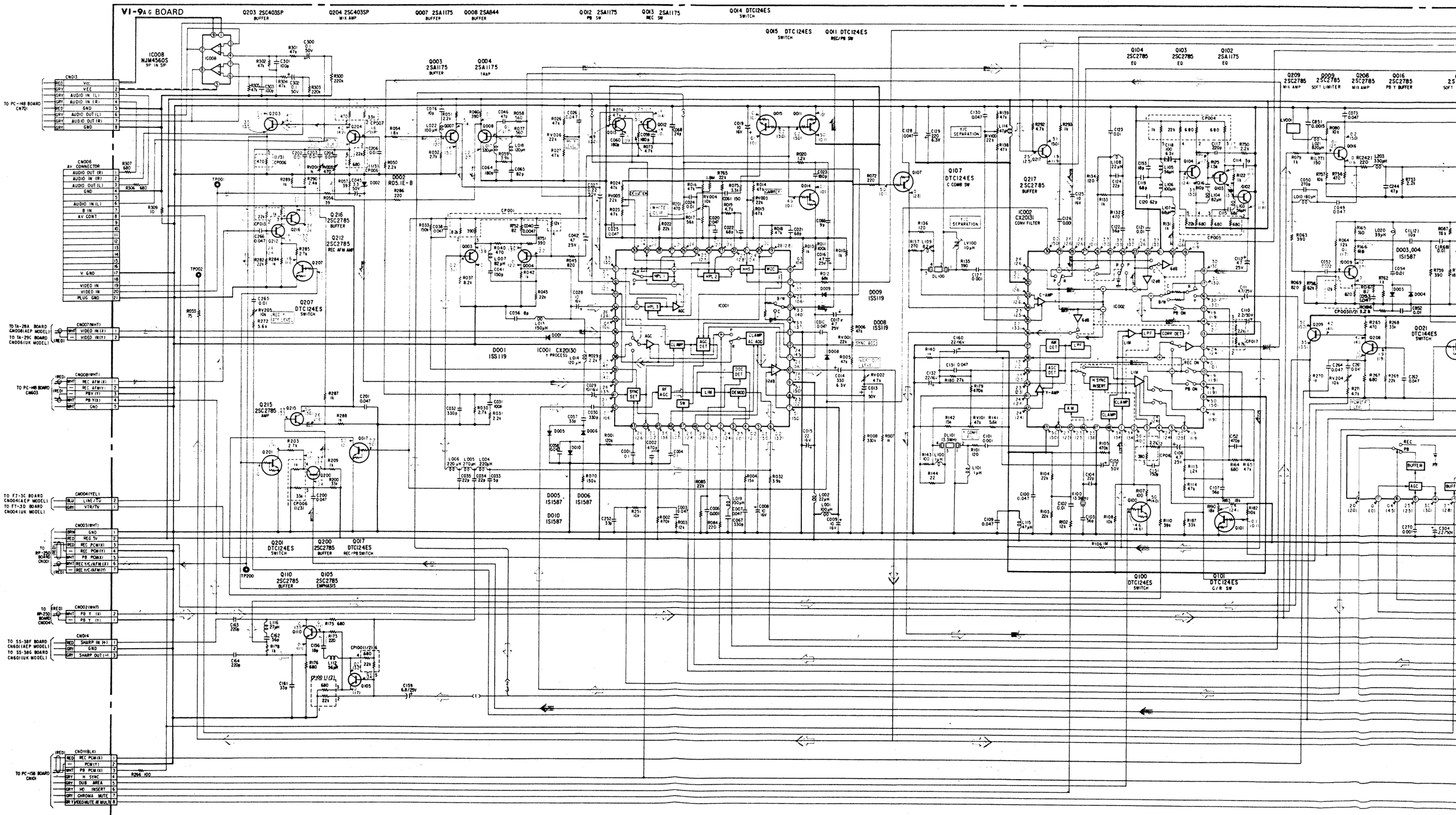
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

VI-9AG BOARD

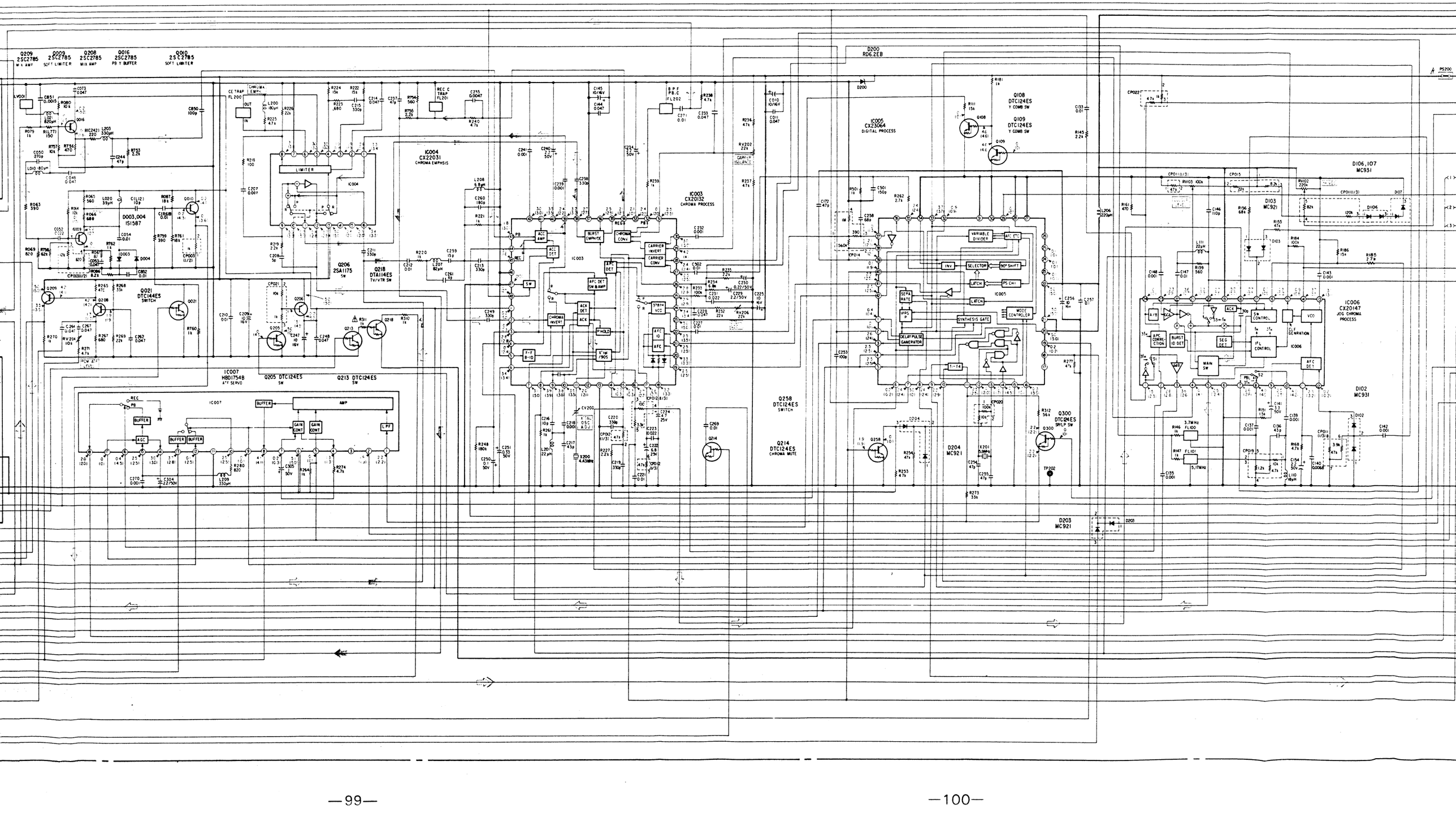


VI-9AG (VIDEO), SK-9 (VIDEO), NC-5 (NOISE CANCELER) SCHEMATIC DIAGRAM

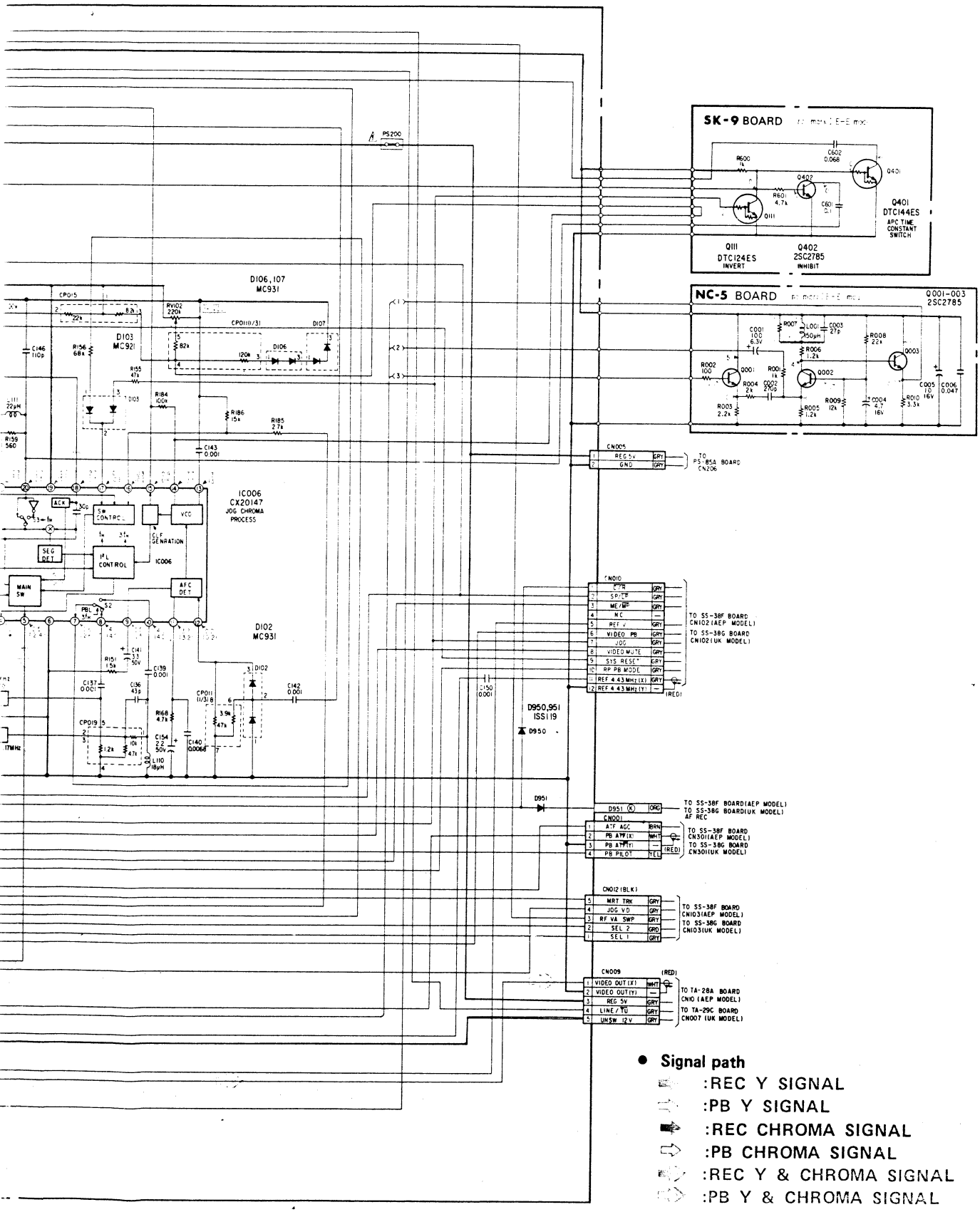
– Ref. No. VI-9AG BOARD: 1000 series, SK-9 BOARD, NC-5 BOARD: 5000 series –



15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31



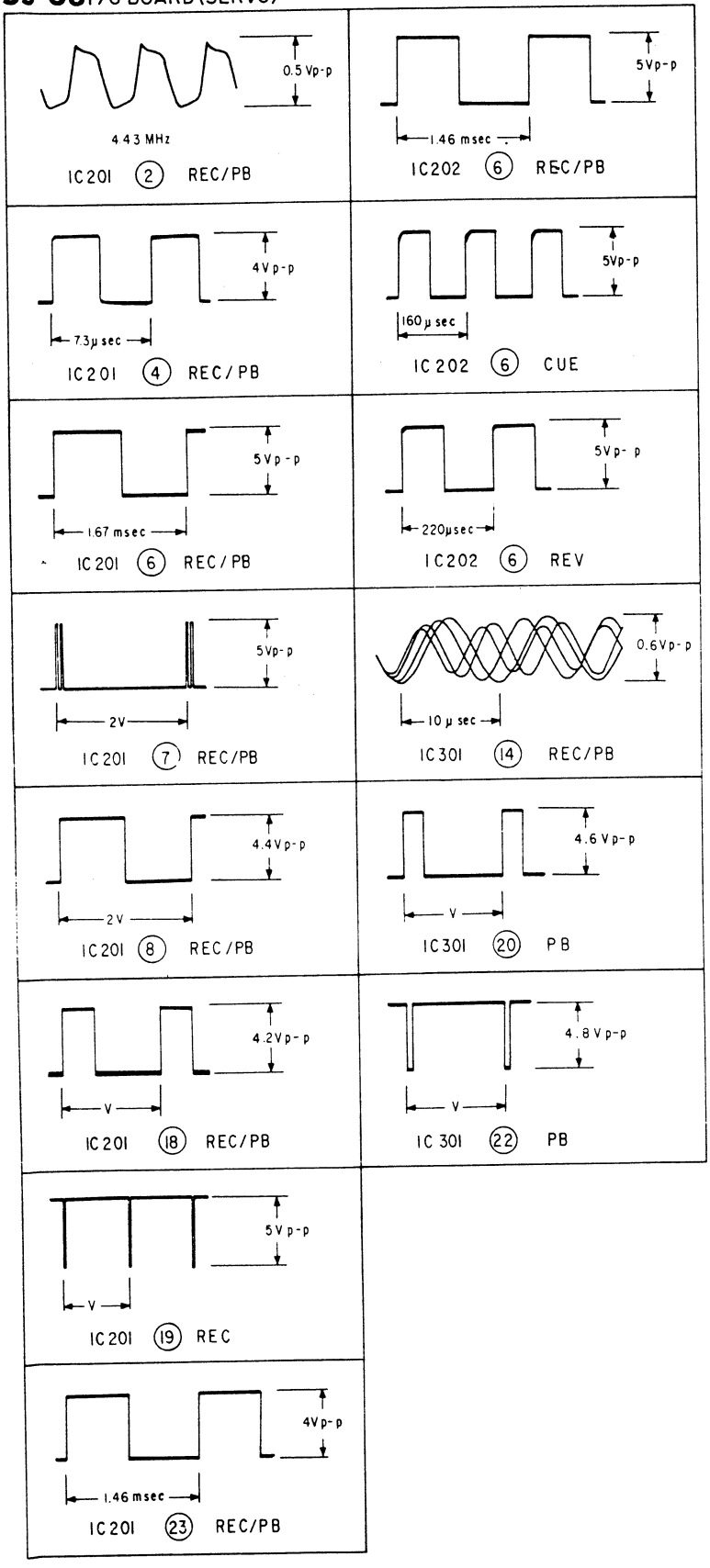
29 30 31 32 33 34 35



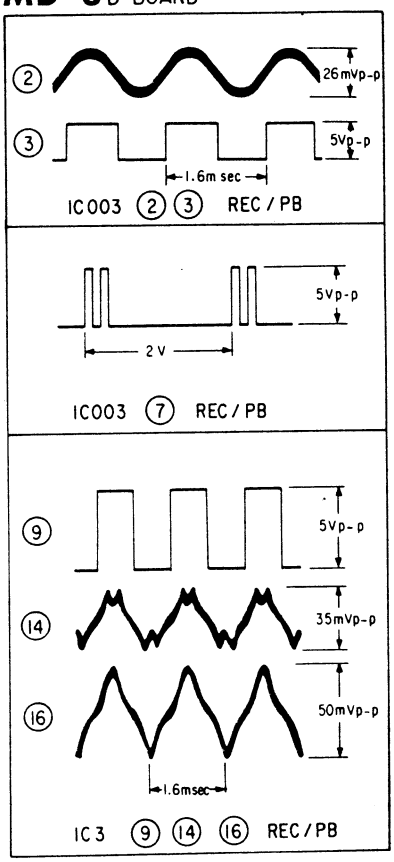
- **Signal path**
  - :REC Y SIGNAL
  - :PB Y SIGNAL
  - :REC CHROMA SIGNAL
  - :PB CHROMA SIGNAL
  - :REC Y & CHROMA SIGNAL
  - :PB Y & CHROMA SIGNAL

SS-38 F/G BOARD (SERVO)

LP mode



MD-8 D BOARD

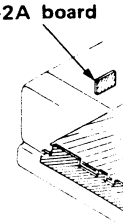


- ○— : parts ext
- ●— : parts ext
- : conductc
- : B + patte

- Digital transistor : Q207, 211, 21 sistor with resistor Refer to the MD digital transistor.

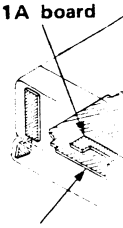
TE-1A

TE-2A board



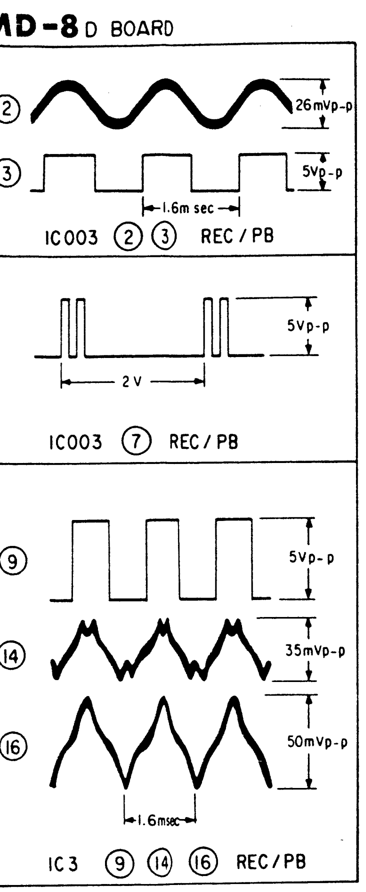
LD-

RS-11A board



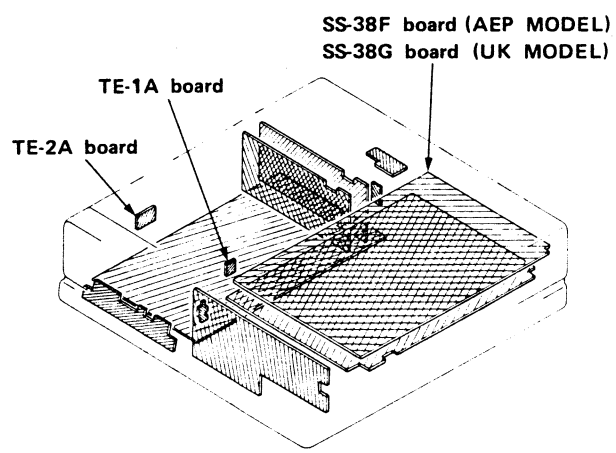
MD-8D board

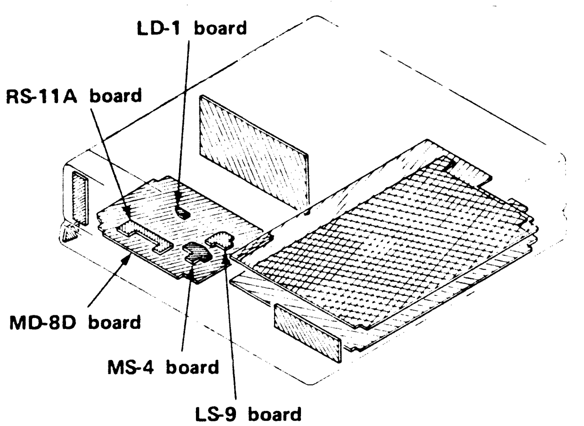
MS-4



- ○— : parts extracted from the component side.
- ●— : parts extracted from the conductor side.
- ▨ : conductor side pattern.
- ▭ : B + pattern.
- ▭ : B − pattern.

- Digital transistor (MD-8D: Q006, 100, 105, 106, 107, SS-38F/G : Q207, 211, 212, 213, 214, 215, 219, 221, 401, 402) transistor with resistors.
  Refer to the MD-8D, SS-38F/G boards schematic diagram for digital transistor.

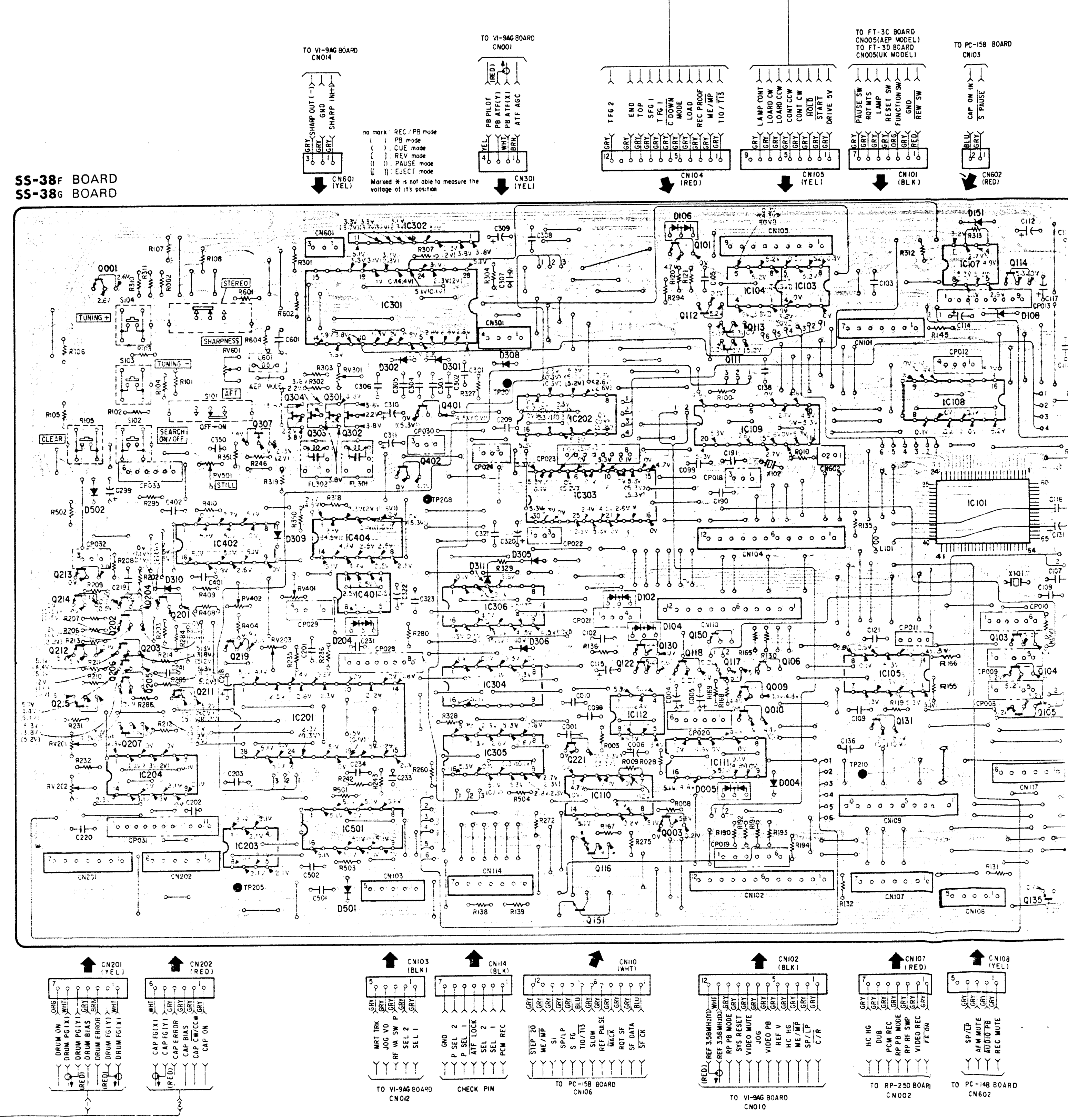




SS-38F/G (SYSTEM CONTROL/SERVO), MD-8D (MOTOR DRIVE), RS-11A (REEL SENSOR), TE-1A (TAPE-END SENSOR) TE-2A (TAPE-END SENSOR), MS-4 (MODE SWITCH/MOD

– Ref. No. SS-38F BOARD (AEP MODEL), SS-38G BOARD (UK MODEL): 3000 series, MD-8D, LS-9 BOARD: 4000 series, RS-11A BOARD: 4200 series, LD-1 BOARD: 4400 series, TE-1A BOARD: 4600 series, TE-2

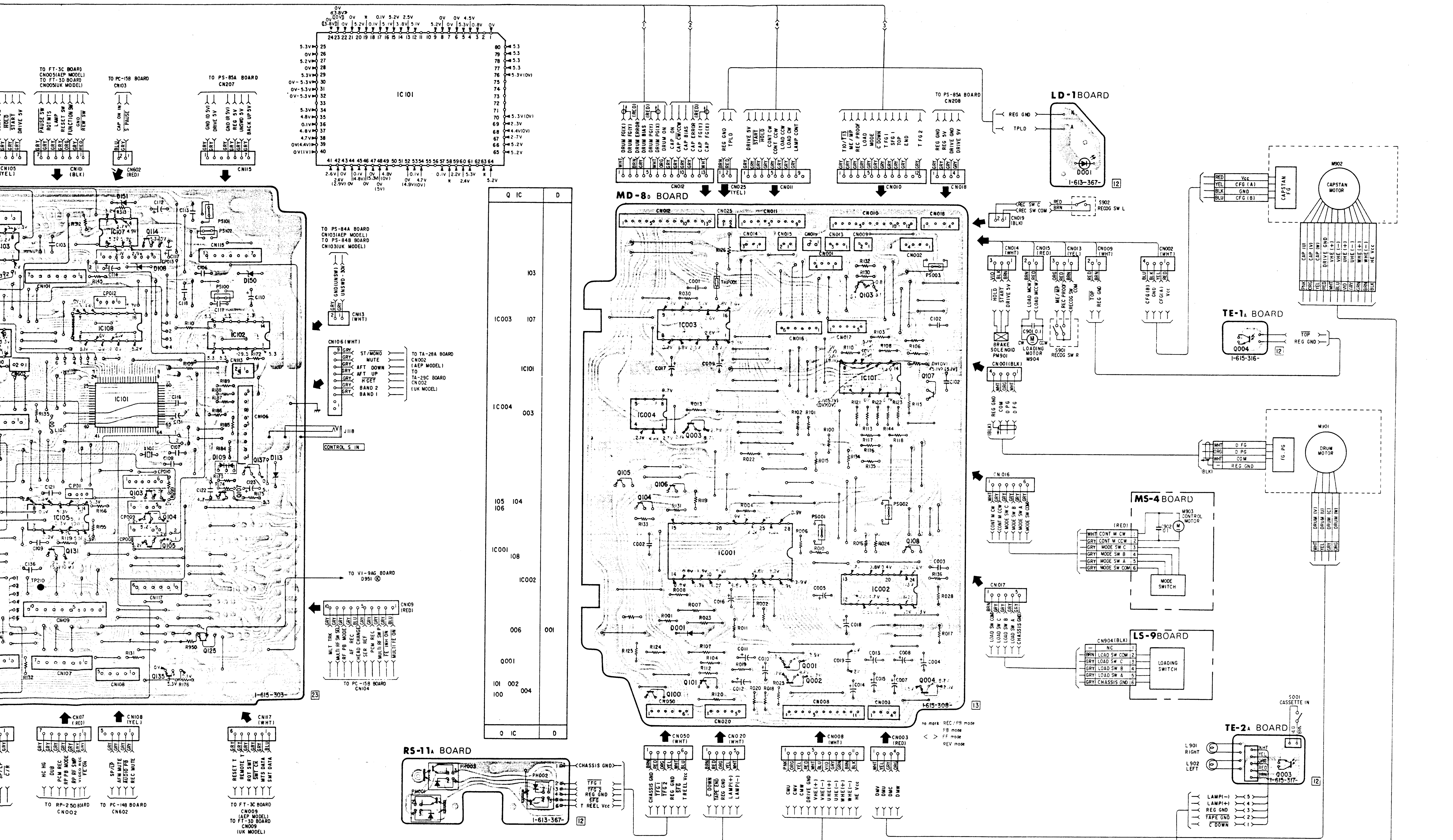
IC	Q	D	ADJ	TP
		151 106		
IC302	101			
IC307 001 IC301	IC107 IC104 114 IC103			
	112	108		
	113	150		
	111	410	RV601	
IC202	IC108 IC102	302 301 308	RV301	201
IC109 304 303 301 307	401 302			
			RV501	
IC303	IC101	502		208
IC402	IC404	309		
IC401		305		
213		310 311	RV401 RV402	
214 201	204 IC306	109		
	137	102 104 113		
202	103	204		
212 203	219 107 130 104	306	RV203	
206		131		
215 211 IC201	205 122 IC304 118 117 105 IC105			
207 IC112 IC305 IC111	009 010 131	126		
	221		RV201	210
IC204				
		004 005	RV202	
IC203 IC501	IC110 003			
	116 125			205
	151 135	501		
IC	Q	D	ADJ	TP



OR), MS-4 (MODE SWITCH/MODE CONTROL), SL-9 (LOADING SWITCH), LD-1 (TAPE SENSOR LIGHT EMISSION) PRINTED WIRING BOARDS

10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25

) series, TE-1A BOARD: 4600 series, TE-2A BOARD: 4800 series, MS-4 BOARD: 5000 series –



SS-38F/G (SYSTEM CONTROL/SERVO), MD-8D (MOTOR DRIVE), RS-11A (REEL SENSOR), TE-1A (TAPE-END SENSOR) TE-2A (TAPE-END SENSOR), MS-4 (MODE SWITCH/MODE CONTROL), SL-9 (LOADING SWITCH), LD-1 (TAPE SENSOR LIGHT EMISSION)

– Ref. No. SS-38F BOARD (AEP MODEL), SS-38G BOARD (UK MODEL): 3000 series, MD-8D, LS-9 BOARD: 4000 series, RS-11A BOARD: 4200 series, LD-1 BOARD: 4400 series, TE-1A BOARD: 4600 series, TE-2A BOARD: 4800 series, MS-4 BOARD: 5000 series –

SS-38F (1/2) BOARD
SS-38G (1/2) BOARD

IC202 TC4526BP PROGRAMABLE DRIVER
IC201 CX20135 MAIN SERVO
D204 MC931
IC203 μPC358C CAP ERROR CAP BIAS AMP
IC204 TC4066 BP SWITCH
IC402 MC14538BCP DRUM, CAPSTAN STARTER
D309 ISS119
D310 ISS119

IC302 H8DI756 1H, 31H DETECT
Q221 DTC144ES SWITCH
Q307 2SK105A SWITCH
IC303 M50763-633SP SB-μCON
IC304 MC14094BCP SEL 1 SEL 2 CONT
Q207 DTC144ES SWITCH
Q211 DTA144ES SWITCH
Q201 2SC2458 CUE/REV DRUM SPEED CORRECTION

Q301 2SK105A SWITCH
Q302 2SK105A SWITCH
IC301 CX22032 ATF SERVO
D301 ISS119
D302 ISS119
IC404 TC4066BP SP/LP SWITCH
IC401 μPC358C AMP
IC305 TC40H157P SWITCH
IC306 TC4053BP SWITCH
IC501 MC14538BCP VD
Q303 2SK105A SWITCH
Q304 2SK105A SWITCH
Q402 DTC144ES SWITCH
Q401 DTC144ES SWITCH
D305 ISS119
D306 ISS119
D308 ISS119
D311 ISS119
Q214 DTC144ES SP/LP SWITCH
Q215 DTA144ES SP/LP SWITCH
Q219 DTC144ES SWITCH
D502 ISS119
D501 ISS119

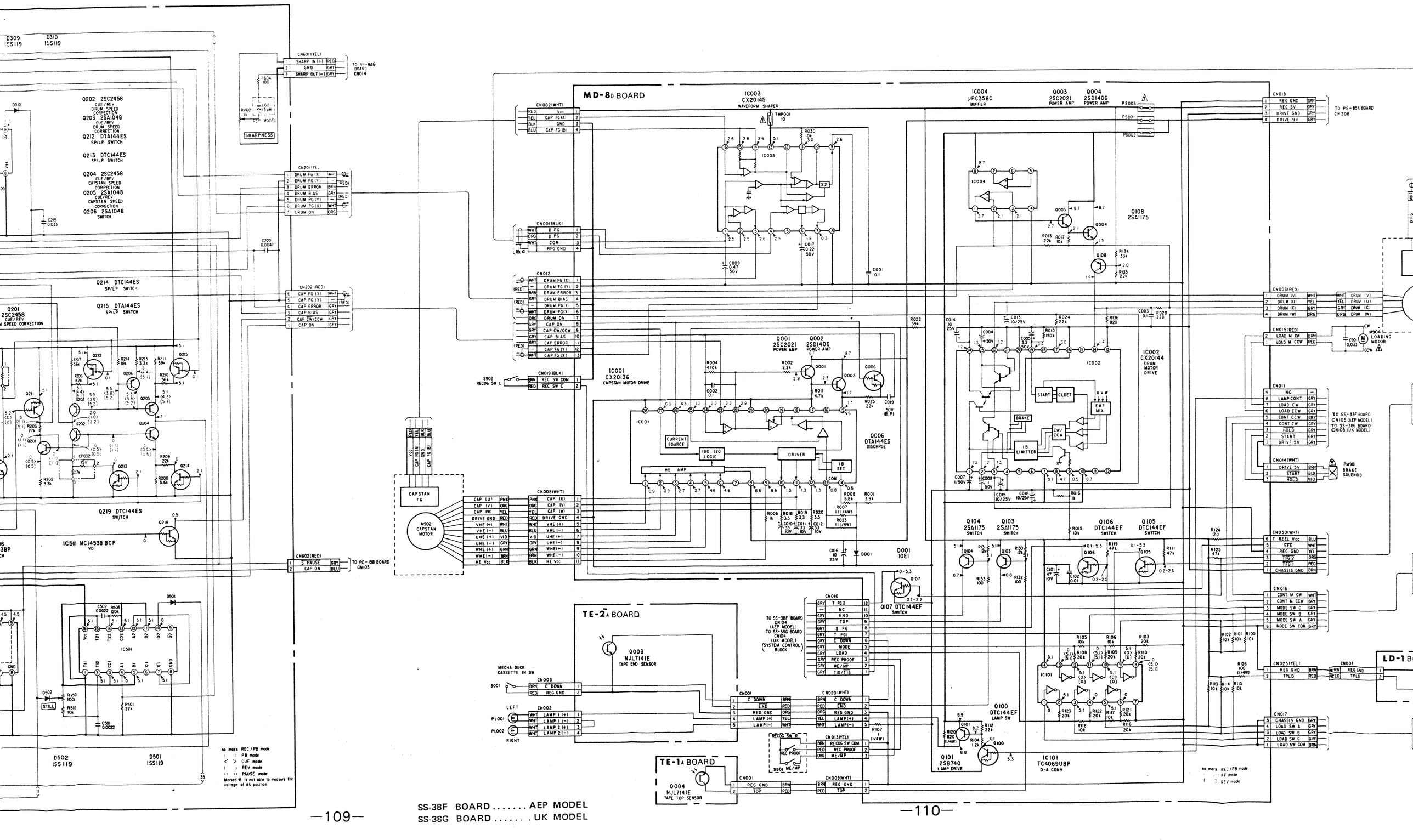
Q202 2SC2458 CUE/REV DRUM SPEED CORRECTION
Q203 2SA1048 CUE/REV DRUM SPEED CORRECTION
Q212 DTA144ES SP/LP SWITCH
Q213 DTC144ES SP/LP SWITCH
Q204 2SC2458 CUE/REV CAPSTAN SPEED CORRECTION
Q205 2SA1048 CUE/REV CAPSTAN SPEED CORRECTION
Q206 2SA1048 SWITCH

TO SYSCON BLOCK SS-38F(1/2) BOARD (AEP MODEL) / SS-38G(1/2) BOARD (UK MODEL)
SLOW, UNSWD 5V, JOG IN, LINE MUTE, X IN, RESET, STEP 20, RFEX, TXTINE, DRUM ON, REF 3.58, CAP ON, SREF, SP/LP, REF V, RF SW PULSE, SCK, SITR, SOTR, TSA, TSB, S RESET, CS, NC, DD 3, DD 2, DD 1, DD 0, S PAUSE, ATF LOCK, CAP FG, MCHG, P SEL 1, P SEL 2, REG 5V, REG GND, BP CONT, BP CONT, B HOLD, C79, JOG OUT, MLT TRK, CAP FWD/RVS, C ATF LOCK, ATF BIAS

TO VI-9AG BOARD CN001: PB PILOT, PB ATF(Y), PB ATF(X), ATF AGC
TO VI-9AG BOARD CN012: MRT TRK, JOG VD, RF VA SW P, SEL 2, SEL 1

PE SENSOR LIGHT EMISSION) SCHEMATIC DIAGRAMS

15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31



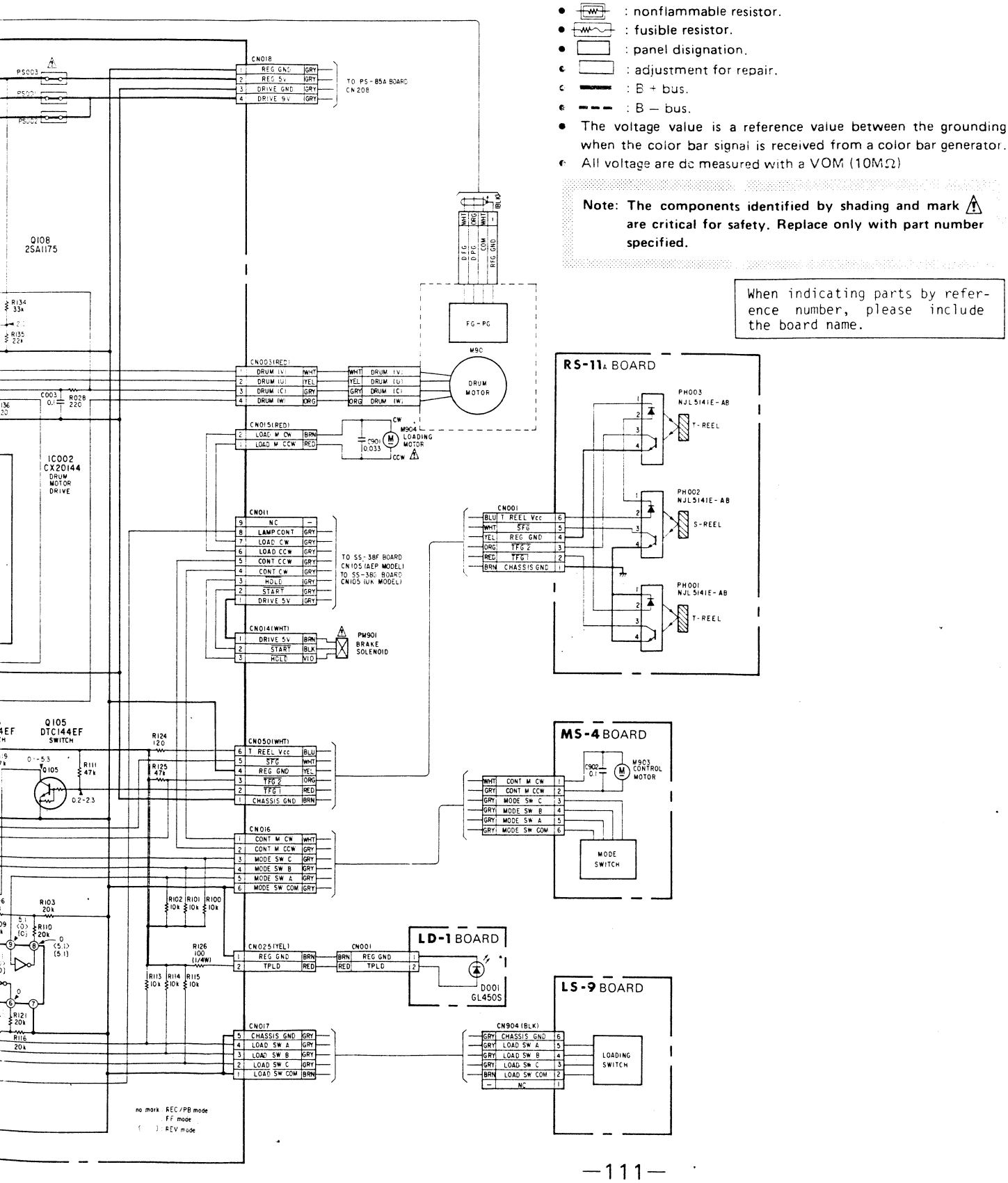
SS-38F BOARD ..... AEP MODEL
SS-38G BOARD ..... UK MODEL

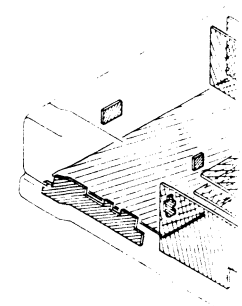
28 | 29 | 30 | 31 | 32 | 33 | 34 | 35

- All capacitors are in μF unless otherwise noted, pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/6W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ.
- All variable and semi-fixed resistors have characteristics curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- : panel disignation.
- : adjustment for repair.
- : B + bus.
- : B − bus.
- The voltage value is a reference value between the grounding when the color bar signal is received from a color bar generator.
- All voltage are dc measured with a VOM (10MΩ)

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.



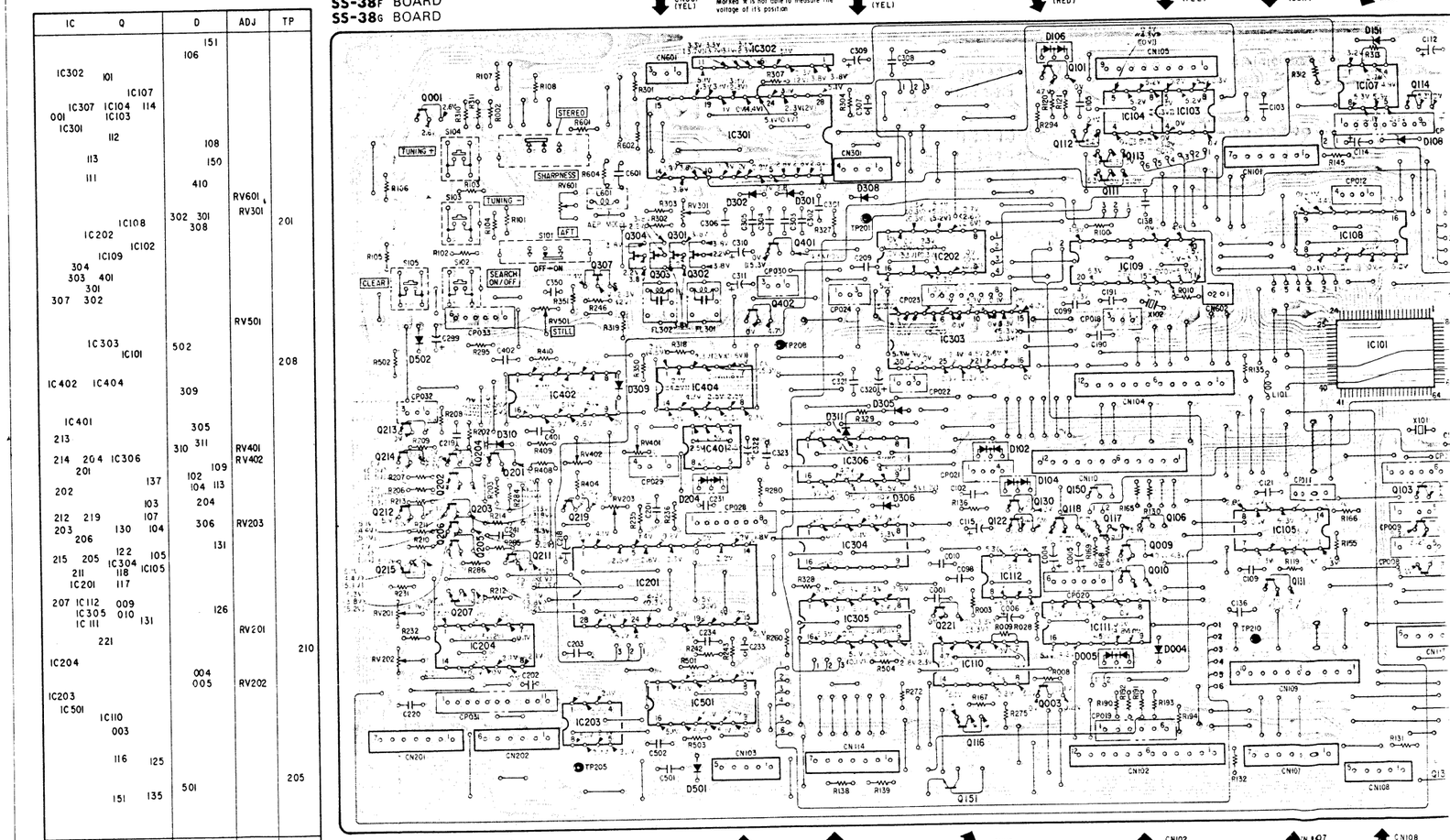


- ○— : parts extracte
- ●— : parts extracte
- : conductor sid
- : B + pattern.
- : B – pattern
- Digital transistor (SS-
  113, 122, 125, 131, 13
  Refer to the SS-38F
  transistor.

SS-38F/G (SYSTEM CONTROL/SERVO) PRINTED WIRING BOARD

– Ref. No. SS-38F BOARD (AEP MODEL), SS-38G BOARD (UK MODEL): 3000 series, MD-8D, LS-9 BOARD: 4000 series, RS-11A BOARD: 4200 series, LD-1 BOARD: 4400 series, TE-1A BOARD: 4600 series, T

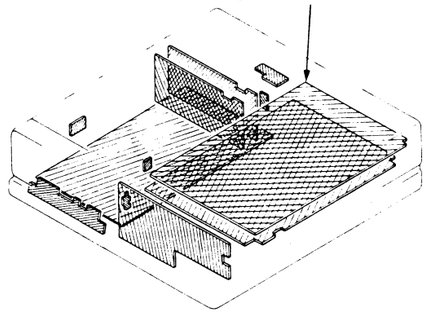
SS-38F BOARD
SS-38G BOARD



IC	Q	D	ADJ	TP
		151		
		106		
IC302	101			
IC107				
IC307 IC104	114			
001 IC103				
IC301				
	112			
		108		
	113	150		
	111			
		410		
			RV601	
		302 301	RV301	201
IC108		308		
IC202				
IC102				
IC109				
304				
303	401			
301				
307	302			
			RV501	
IC303		502		
IC101				208
IC402 IC404				
		309		
IC401				
		305		
213		310 311	RV401	
			RV402	
214 204 IC306		109		
201		102		
137		104 113		
202		204		
103				
212 219 107		306	RV203	
203 130	104			
206		131		
122				
215 205 IC304	105			
211 118 IC105				
IC201	117			
207 IC112	009			
IC305	010	126		
IC 111	131		RV201	
221				210
IC204				
		004		
		005	RV202	
IC203				
IC501				
IC110				
003				
116	125			
		501		205
151	135			

IC Q D ADJ TP

SS-38F board (AEP MODEL)
SS-38G board (UK MODEL)

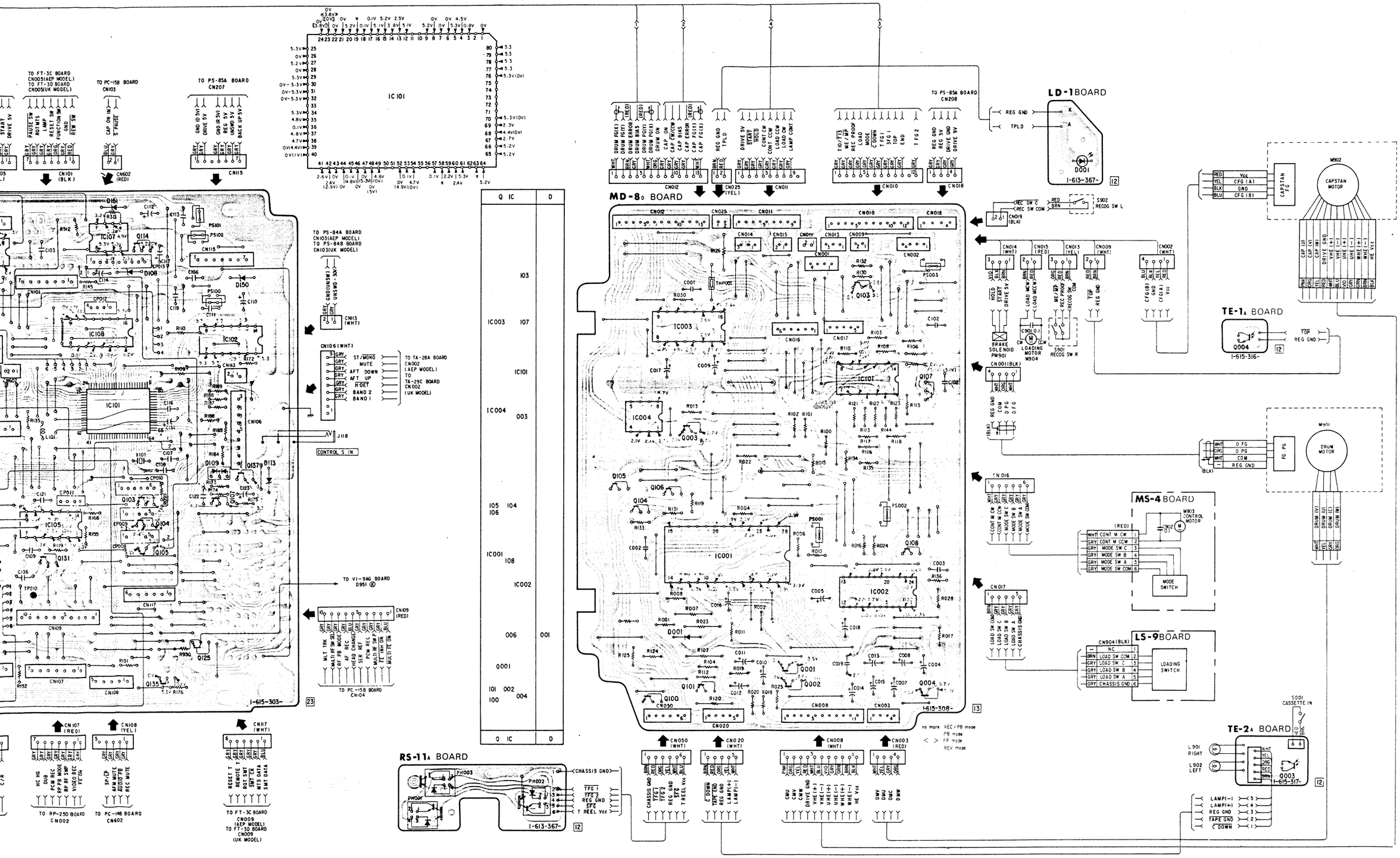


- ○— : parts extracted from the component side.
- —● : parts extracted from the conductor side.
- : conductor side pattern.
- : B + pattern.
- : B – pattern.
- Digital transistor (SS-38F/G: Q001, 009, 010, 103, 111, 112, 113, 122, 125, 131, 137, 151) transistor with resistors. Refer to the SS-38F/G board schematic diagram for digital transistor.

SS-38F BOARD ..... AEP MODEL
SS-38G BOARD ..... UK MODEL

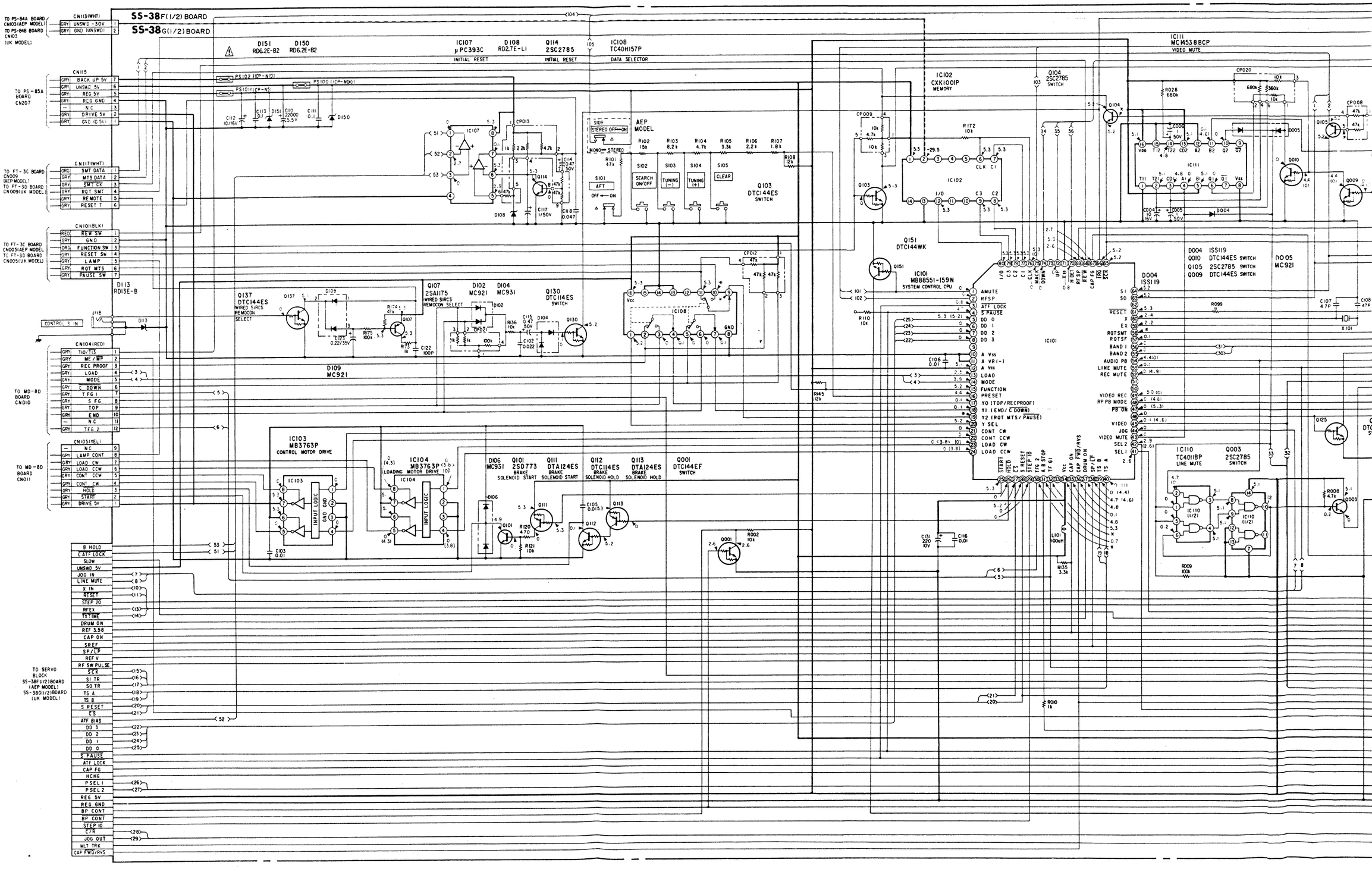
10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25

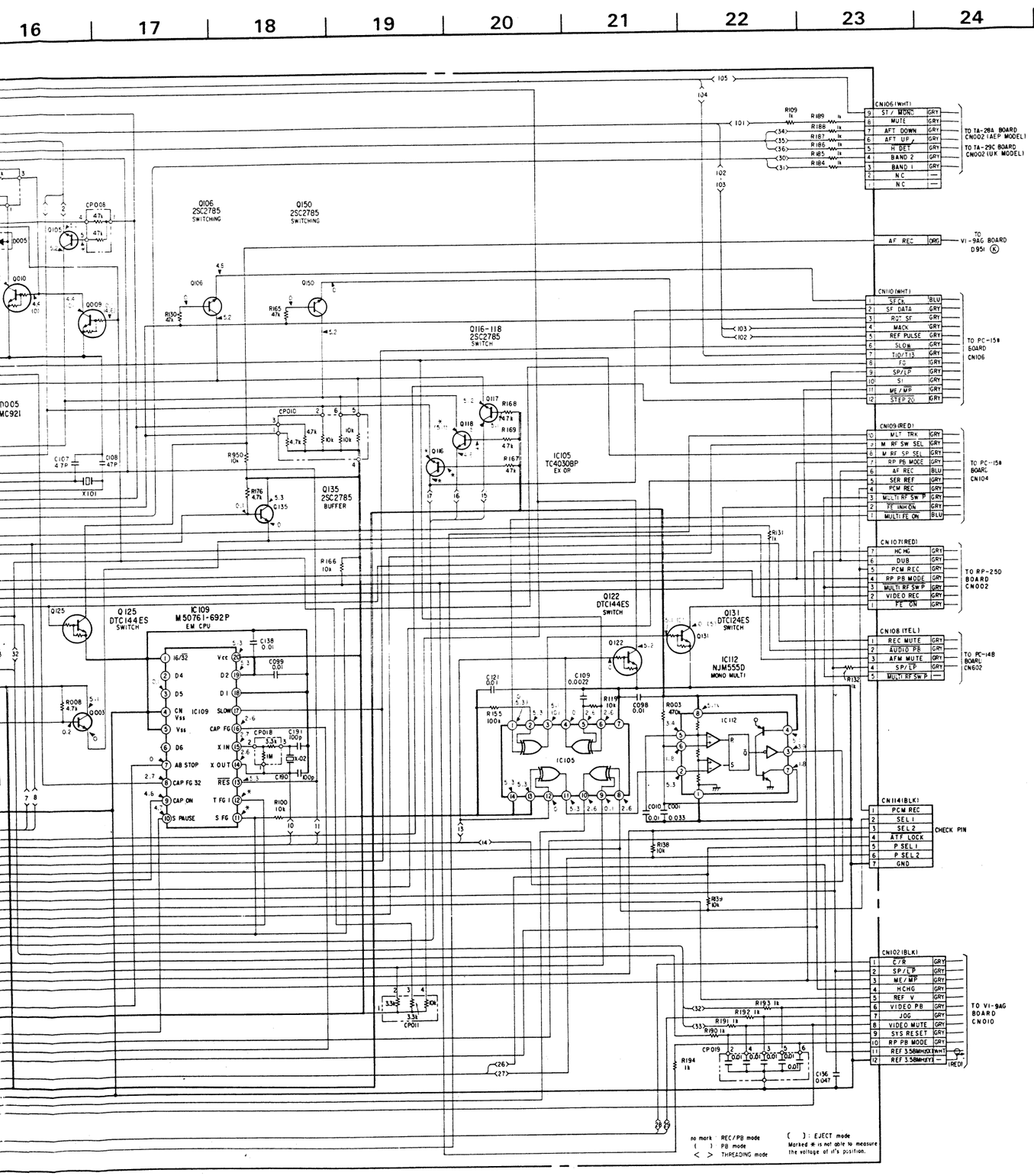
ries, TE-1A BOARD: 4600 series, TE-2A BOARD: 4800 series, MS-4 BOARD: 5000 series –



SS-38F/G (SYSTEM CONTROL/SERVO) SCHEMATIC DIAGRAM

– Ref. No. SS-38F BOARD (AEP MODEL), SS-38G BOARD (UK MODEL): 3000 series –



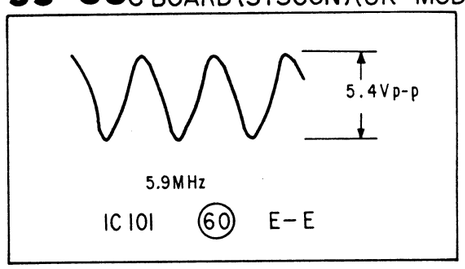


- All capacitors are in μF unless otherwise noted, pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/6W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ.
- All variable and semi-fixed resistors have characteristics curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- : panel disignation.
- : adjustment for repair.
- ▬▬ : B + bus.
- ▬ ▬ ▬ : B – bus.
- The voltage value is a reference value between the grounding when the color bar signal is received from a color bar generator.
- All voltage are dc measured with a VOM (10MΩ)

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

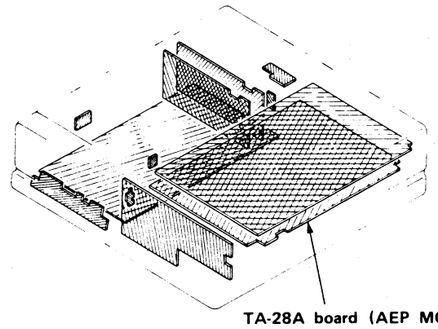
When indicating parts by reference number, please include the board name.

SS-38F BOARD(SYSCON)(AEP MODEL)
SS-38G BOARD(SYSCON)(UK MODEL)



SS-38F BOARD ..... AEP MODEL
SS-38G BOARD ..... UK MODEL

TUNER



TA-28A board (AEP MODEL)

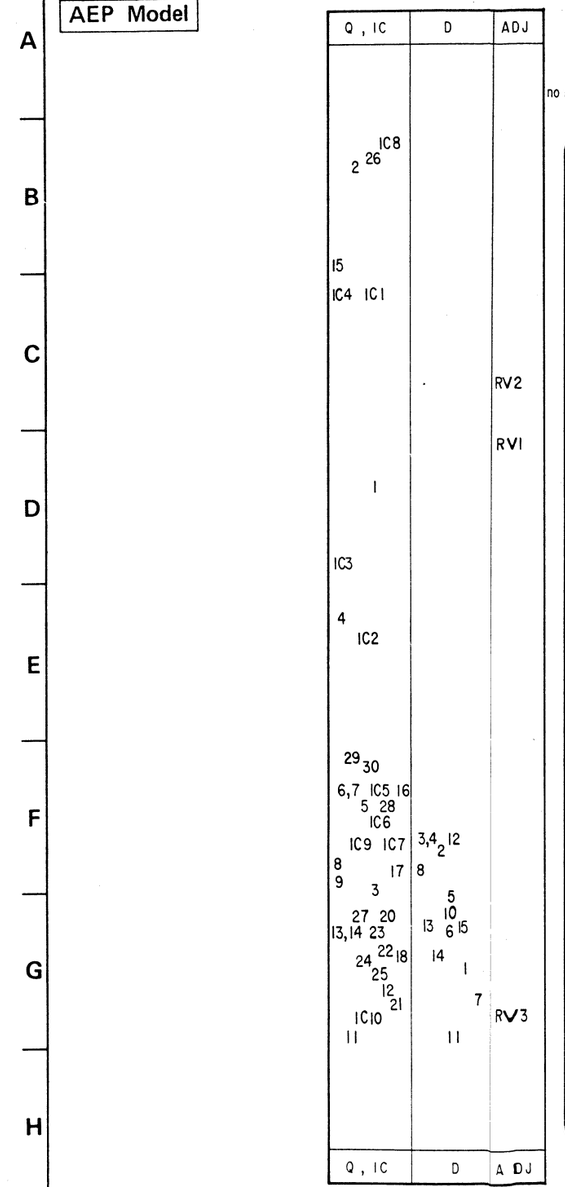
- ○— : parts extracted from the component side.
- ●— : parts extracted from the conductor side.
- : conductor side pattern.
- : B + pattern.
- : B – pattern.

- Digital transistor (TA-28A : Q005, 006, 007, 008, 009, 020, 022, 027, 028, 029, 030) transistor with resistors.
  Refer to the TA-28A board schematic diagram for digital transistor.

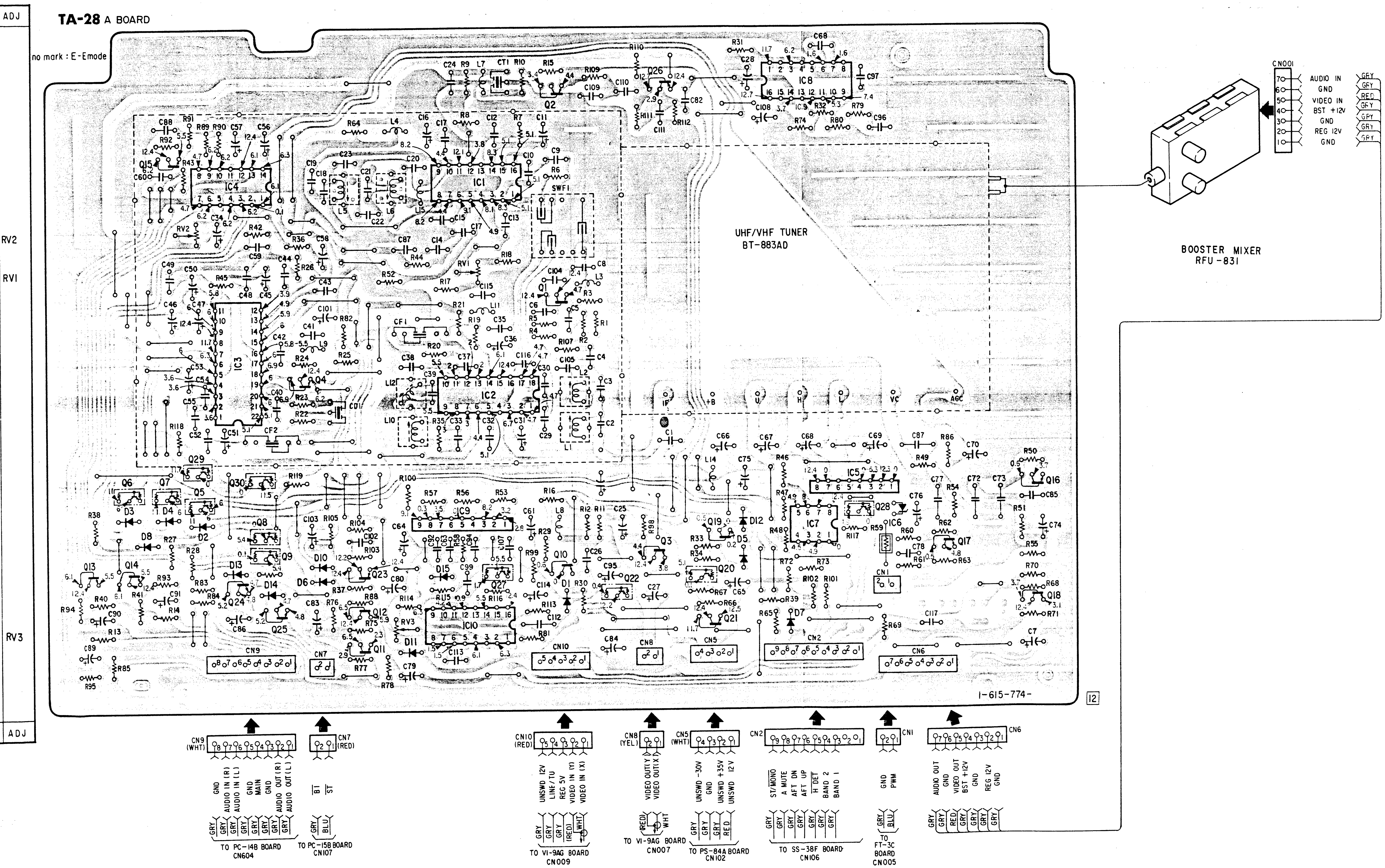
TA-28A (TUNER/VIF/MPX) PRINTED WIRING BOARD

– Ref. No. TA-28A BOARD: 6000 series –.

AEP Model



ARD | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19



TA-28A (TUNER/VIF/MPX) SCHEMATIC DIAGRAM

– Ref. No. TA-28A BOARD: 6000 series –

AEP Model

TA-28 A BOARD

TU1 UHF/VHF TUNER BT-883AD (AGC, VC, L, H, U, +B, IF)

IC1 TA7607AP VIF

Q1 2SC2026 PRE AMP

Q16 2SC2785 VC FILTER

IC5 M54572L BAND DECORDER

SWF1

Q12 2SA1175 VIDEO AMP

Q26 2SA1175 SWITCH

Q3 2SC2785 VIDEO BUFFER

IC9 TA7357AP HD GENERATOR

IC7 NJM2903D COMPARATOR

IC2 TDA2546A SIF-1

Q4 2SC2785 PILOT AMP

IC3 TDA4940 SIF-2

Q5,6,7 DTC144ES SWITCH

IC10 MC14046BCP PH PLL

Q17 2SC403SP-3 DA CONVERTER

IC6 µPC574J +33V REG

Q28 DTC144ES SWITCH

D7 ISS119

D2,3,4 ISS119

Q13 2SC2785 BUFFER

Q23 2SA1175 NOISE DET

D6 ISS119

Q29,30 DTC144ES SWITCH

Q18 2SC2785 BUFFER

Q21 2SB733-4 +12V REG

Q19 2SC2785 METE

Q10 2SC2785 SWITCH

IC8 MC14046BCP H DET

Q11,12 2SC2785 BUFFER

IC4 TDA4944 MATRIX

Q15 2SC2785 BUFFER

Q14 2SC2785 BUFFER

Q22 DTC144ES SWITCH

Q9 DTC124ES SWITCH

Q20 DTC124ES SWITCH

D12 ISS119

D1,5 ISS119

D10 ISS119

D11 ISS119

BOOSTER MIXER RFU-831 (AERIAL IN / OUT)

CN001
1	GND
2	REG 12V
3	GND
4	BST + 12V
5	VIDEO IN
6	GND
7	AUDIO IN

CN001(WHT) TO FT-3C BOARD CN005
BLU	PWM 1
GRY	GND 2

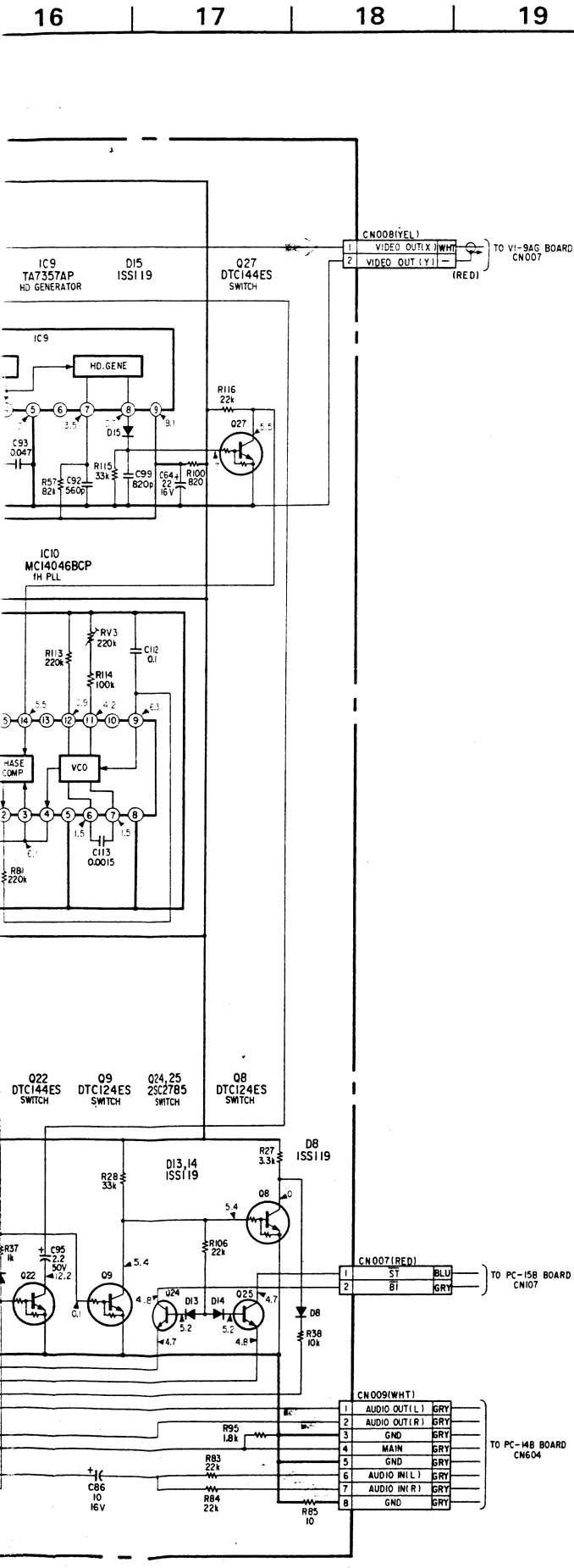
CN002 TO SS-38F BOARD CN106
—	NC 1
—	NC 2
GRY	BAND 1 3
GRY	BAND 2 4
GRY	H DET 5
GRY	AFT UP 6
GRY	AFT DN 7
GRY	A MUTE 8
GRY	ST/MONO 9

CN005(WHT) TO PS-84A BOARD CN102
RED	UNSWD 12V 1
GRY	UNSWD +35V 2
GRY	GND 3
GRY	UNSWD -30V 4

CN006
GRY	GND 1
GRY	REG 12V 2
GRY	GND 3
GRY	BST +12V 4
RED	VIDEO OUT 5
GRY	GND 6
GRY	AUDIO OUT 7

CN010(RED) TO VI-9AG BOARD CN009
GRY	UNSWD 12V 5
GRY	LINE/TU 4
GRY	REG 5V 3
—	VIDEO IN(Y) 2
WHT	VIDEO IN(X) 1

(RED)



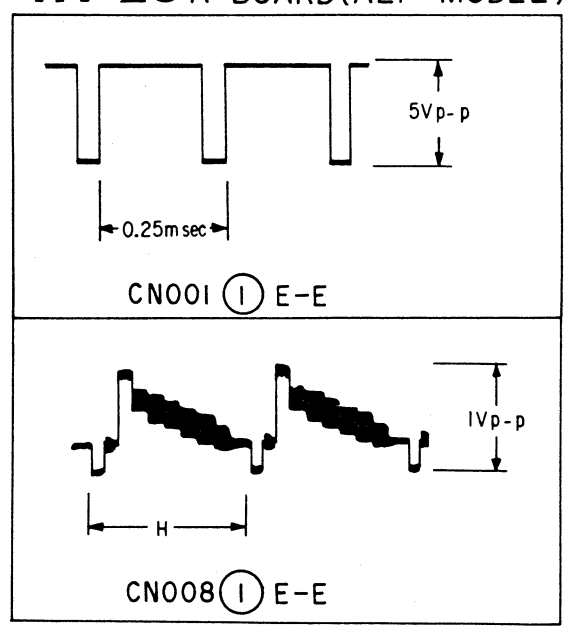
- All capacitors are in μF unless otherwise noted, pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/6W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ.
- All variable and semi-fixed resistors have characteristics curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- : panel disignation.
- : adjustment for repair.
- : B + bus.
- : B – bus.
- The voltage value is a reference value between the grounding when the color bar signal is received from a color bar generator.
- All voltage are dc measured with a VOM (10MΩ)

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- **Signal path**
  - :REC Y & CHROMA SIGNAL
  - :PB Y & CHROMA SIGNAL
  - :REC AUDIO SIGNAL
  - :PB AUDIO SIGNAL

TA-28 A BOARD(AEP MODEL)



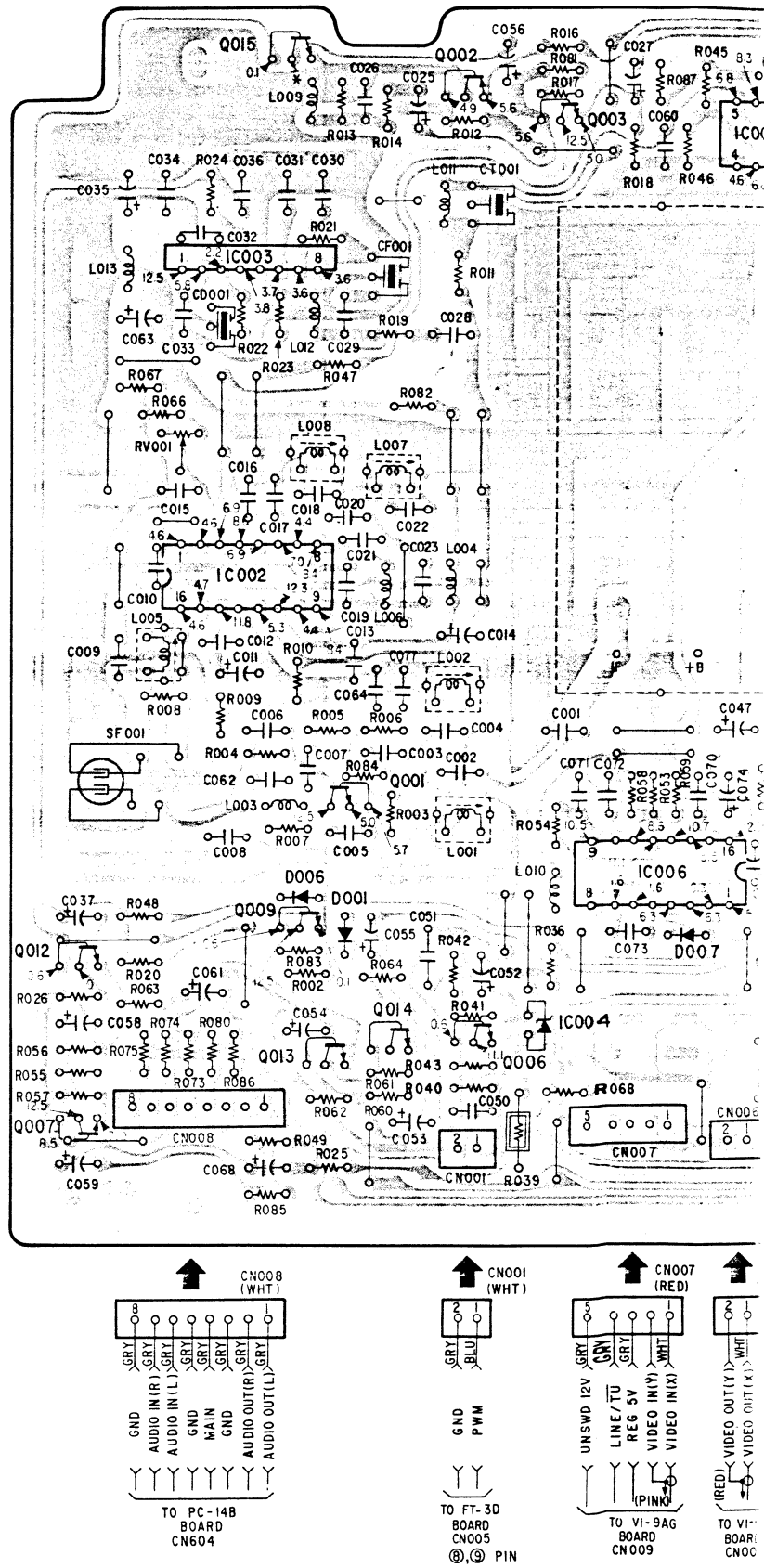
TA-29C (TUNER/VIF/MPX) PRINTED WIRING BOARD

– Ref. No. TA-29C BOARD: 6500 series –

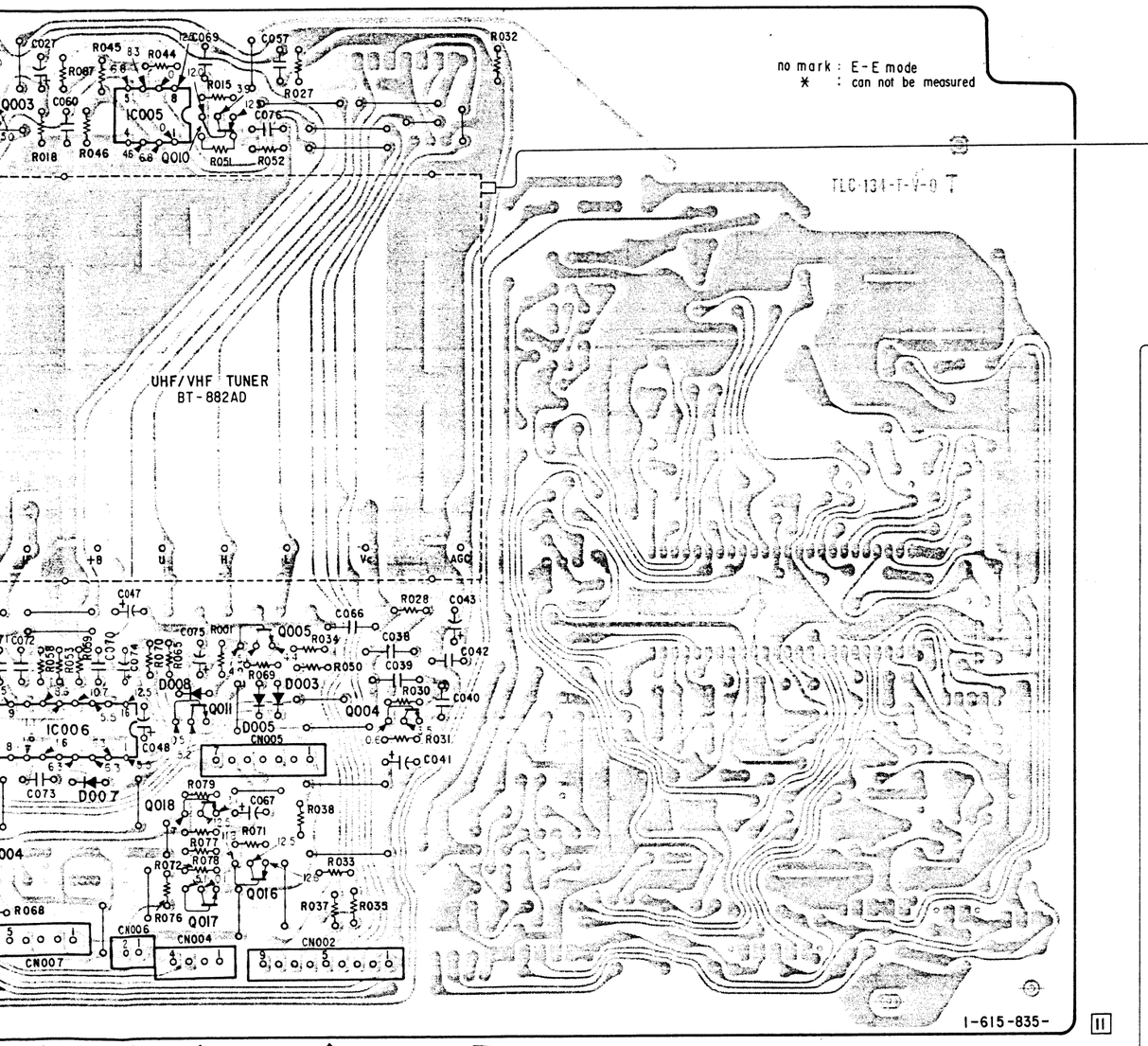
UK Model

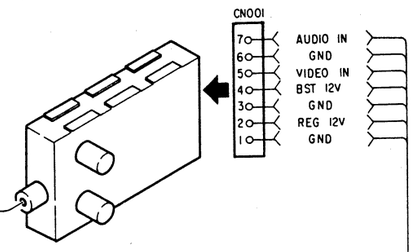
Q, IC	D	ADJ	TP
015 002			
003 IC005 010			
IC003			
		001	
IC002			
005			
001			
011 004 IC006	008 005 003		
009	006 001 007		
012 018			
IC004 013,014,006 016			
017			
007			
Q, IC	D	ADJ	TP

TA-29C BOARD

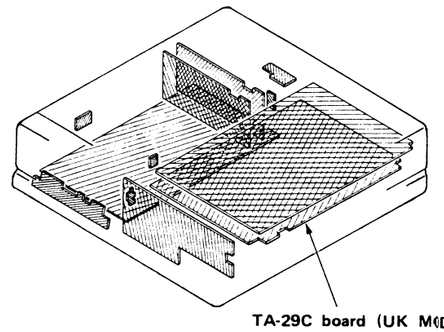


8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23





BOOSTER MIXER
BFU-830



TA-29C board (UK MODEL)

- ○— : parts extracted from the component side.
- ●— : parts extracted from the conductor side.
- ▩ : conductor side pattern.
- : B + pattern.
- : B – pattern.
- Digital transistor (TA-29C : Q015, 017) transistor with resistors.
  Refer to the TA-29C board schematic diagram for digital transistor.

TA-29C (TUNER/VIF/MPX) SCHEMATIC DIAGRAMS

– Ref. No. TA-29C BOARD: 6500 series –

UK Model

TA-29C BOARD

TU1 UHF/VHF TUNER BT-882AD

AGC VC L H U +B IF

Q4 2SC2785 D-A CONVERTER

Q1 2SC2026 RF PRE AMP

IC2 TA7607AP VIF

Q2 2SA1175 BUFFER

Q3 2SC2785 BUFFER

IC5 NJM2903D COMPARATOR

Q11 2SC2785 SWITCH

IC6 MC14046 PLL

Q10 2SA1175 SYNC SEP

IC3 μPC1391HA SIF

Q6 2SC403SP D-A CONVERTER

IC4 μPC574J +33V REG

D7 1SS119

Q15 DTC124ES SWITCH

Q16 2SB733 SWITCH

D3 1SS119

D8 1SS119

D5 1SS119

Q13 2SC2785 BUFFER

Q14 2SC2785 BUFFER

Q18 2SC2785 BUFFER

Q9 2SC2785 SWITCH

Q12 2SC2785 SWITCH

Q7 2SC2785 BUFFER

Q17 DTC124ES SWITCH

Q5 2SC2785 DELAY

D1,6 1SS119

CN001 BOOSTER MIXER RFU-830

1	GND
2	REG 12V
3	GND
4	BST + 12V
5	VIDEO IN
6	GND
7	AUDIO IN

AERIAL IN / OUT

CN001 (WHT) TO FT-3D BOARD CN005 ⑧,⑨ PIN

BLU	PWM	1
GRY	GND	2

CN002 TO SS-38G BOARD CN106

WHT	MPX	1
—	GND	2
GRY	BAND 1	3
GRY	BAND 2	4
GRY	H DET	5
GRY	AFT UP	6
GRY	AFT DN	7
GRY	A MUTE	8
—	NC	9

CN004 TO PS-84B BOARD CN102

RED	UNSWD 12.6V	1
GRY	UNSWD 35V	2
GRY	GND	3
GRY	UNSWD -30V	4

CN005

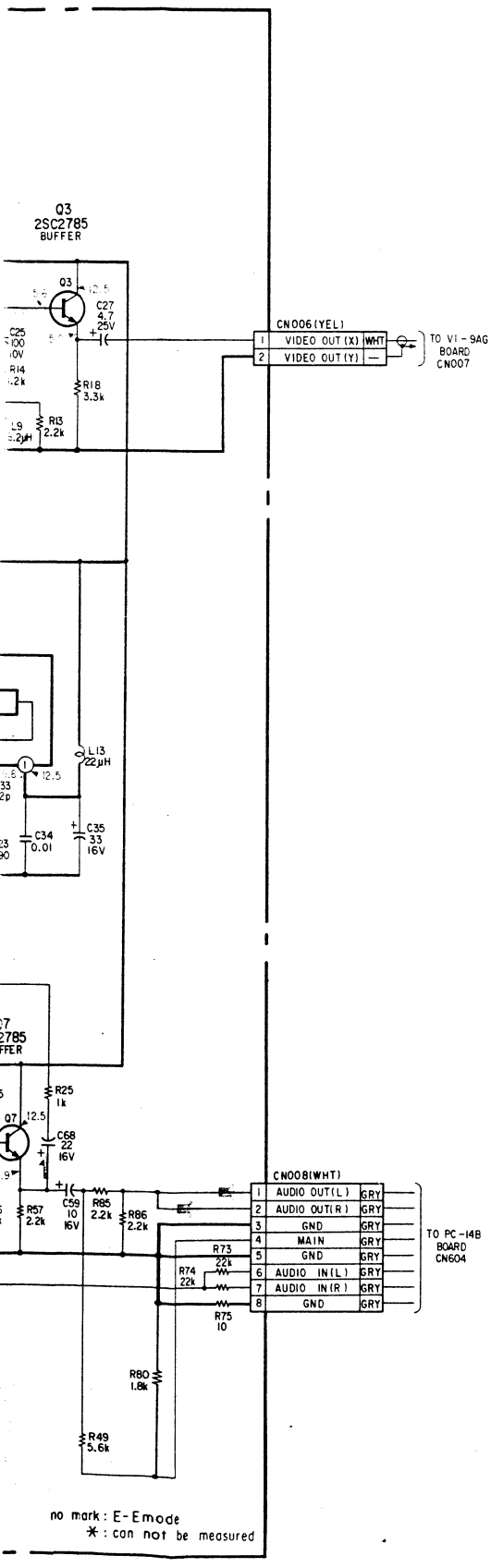
GRY	AUDIO OUT	7
GRY	GND	6
RED	VIDEO OUT	5
GRY	BST +12V	4
GRY	GND	3
GRY	REG 12V	2
GRY	GND	1

CN007 (RED) TO VI-9AG BOARD CN009

WHT	VIDEO IN(X)	1
—	VIDEO IN(Y)	2
GRY	REG 5V	3
GRY	LINE / TU	4
GRY	UNSWD 12V	5

no mark : E-Emode
* : can not be

16 | 17 | 18 | 19



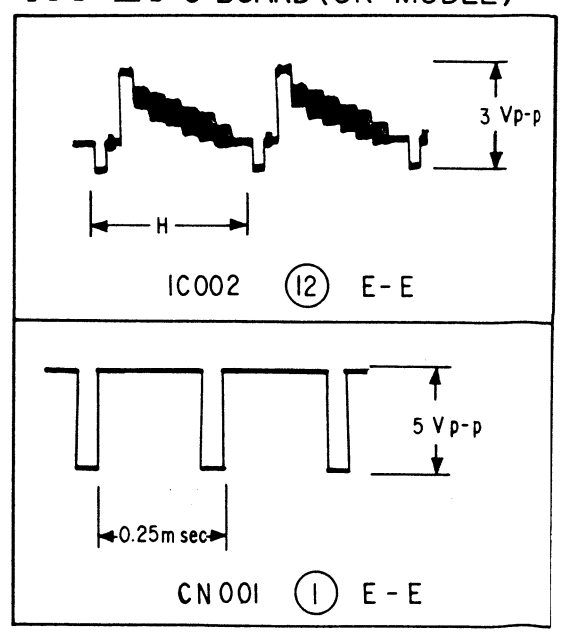
- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4W unless otherwise noted.
  kΩ : 1000Ω, MΩ : 1000kΩ.
- All variable and semi-fixed resistors have characteristics curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- : panel disignation.
- : adjustment for repair.
- : B + bus.
- : B − bus.
- The voltage value is a reference value between the grounding when the color bar signal is received from a color bar generator.
- All voltage are dc measured with a VOM (10MΩ)

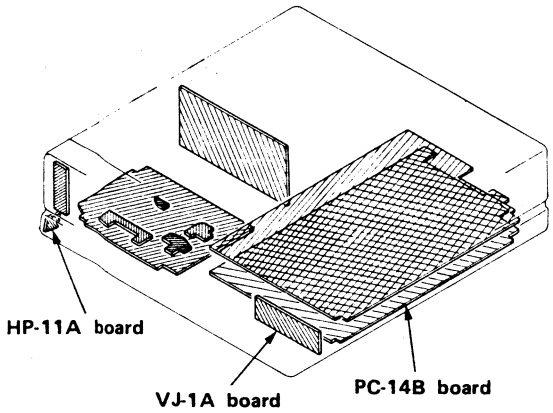
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- **Signal path**
  - :REC Y & CHROMA SIGNAL
  - :PB Y & CHROMA SIGNAL
  - :REC AUDIO SIGNAL

TA-29 C BOARD (UK MODEL)





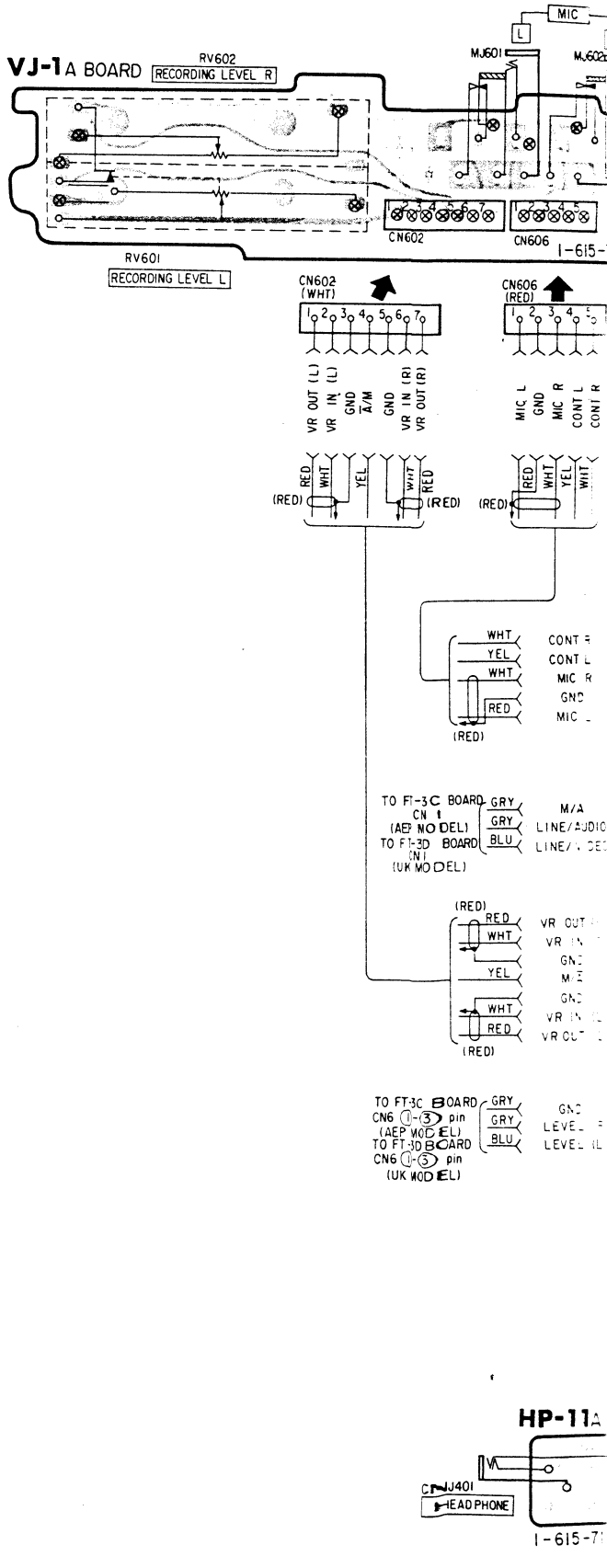
- O— : parts extracted from the component side.
- ●— : parts extracted from the conductor side.
- : conductor side pattern.
- : component side pattern.
- : B + pattern.
- : B − pattern.
- Digital transistor (HP-11A : Q202, 203, 204, 205, PC-14B : Q503, 504, 652) transistor with resistors.
  Refer to the HP-11A, PC-14B boards schematic diagram for digital transistor.

PC-14B (AUDIO), VJ-1A (VOLUME/JACK), HP-11A (FUNCTION SW

1 2 3 4

– Ref. No. PC-14B BOARD: 7000 series, HP-11A, VJ-1A BOARD: 6000 se

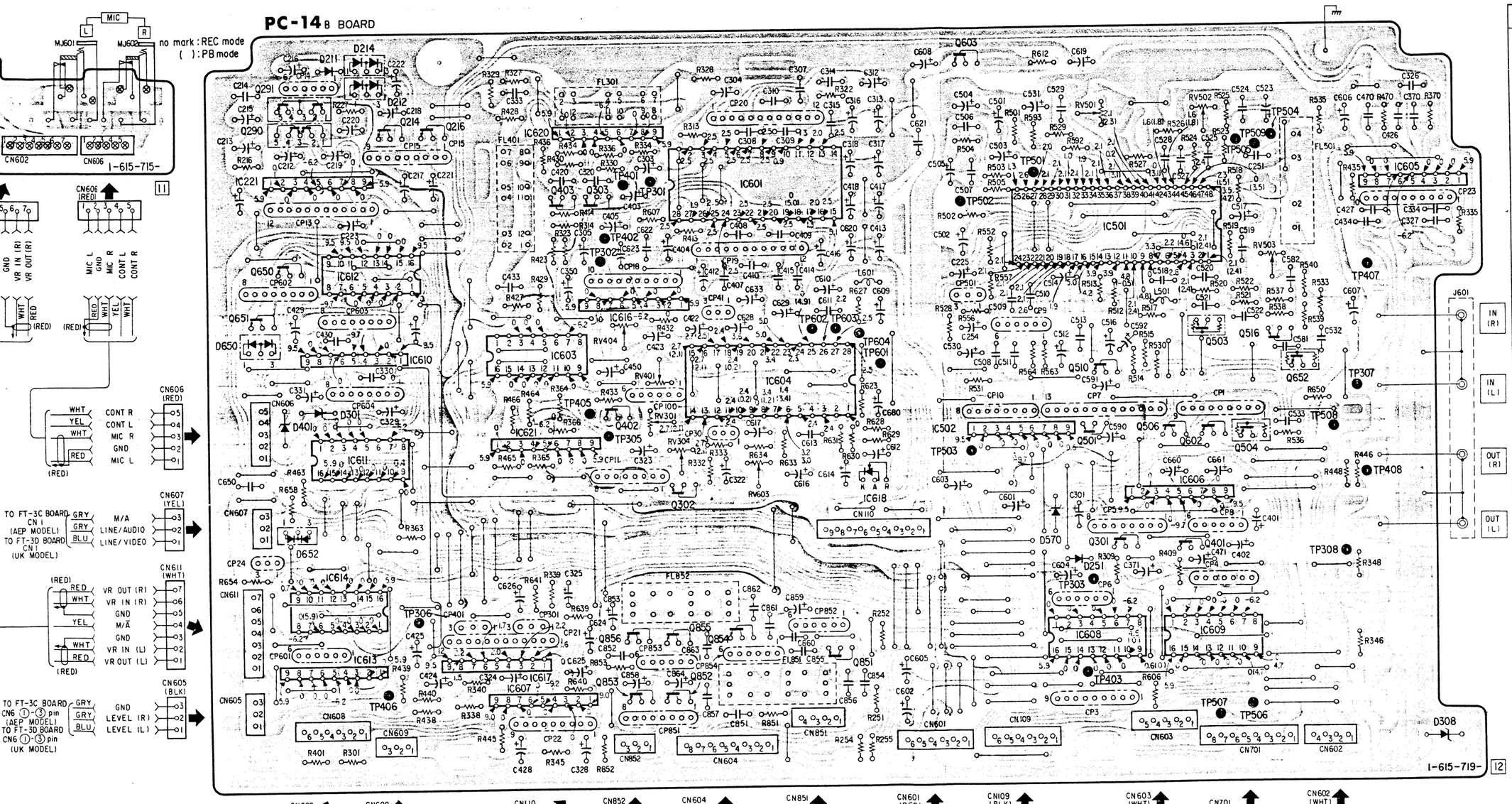
A B C D E F G H I J



4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

VJ-1A BOARD: 6000 series –

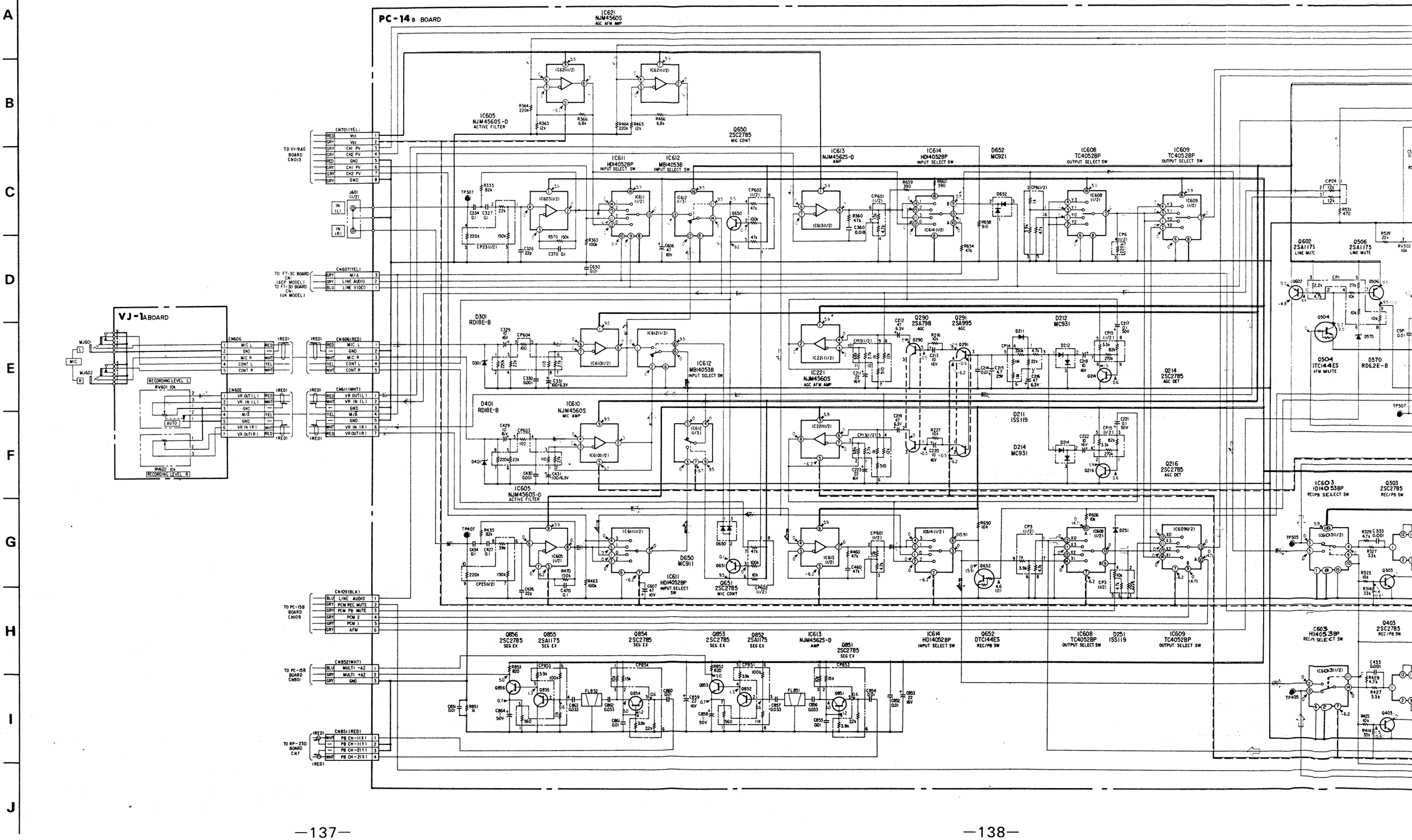
PC-14 B BOARD



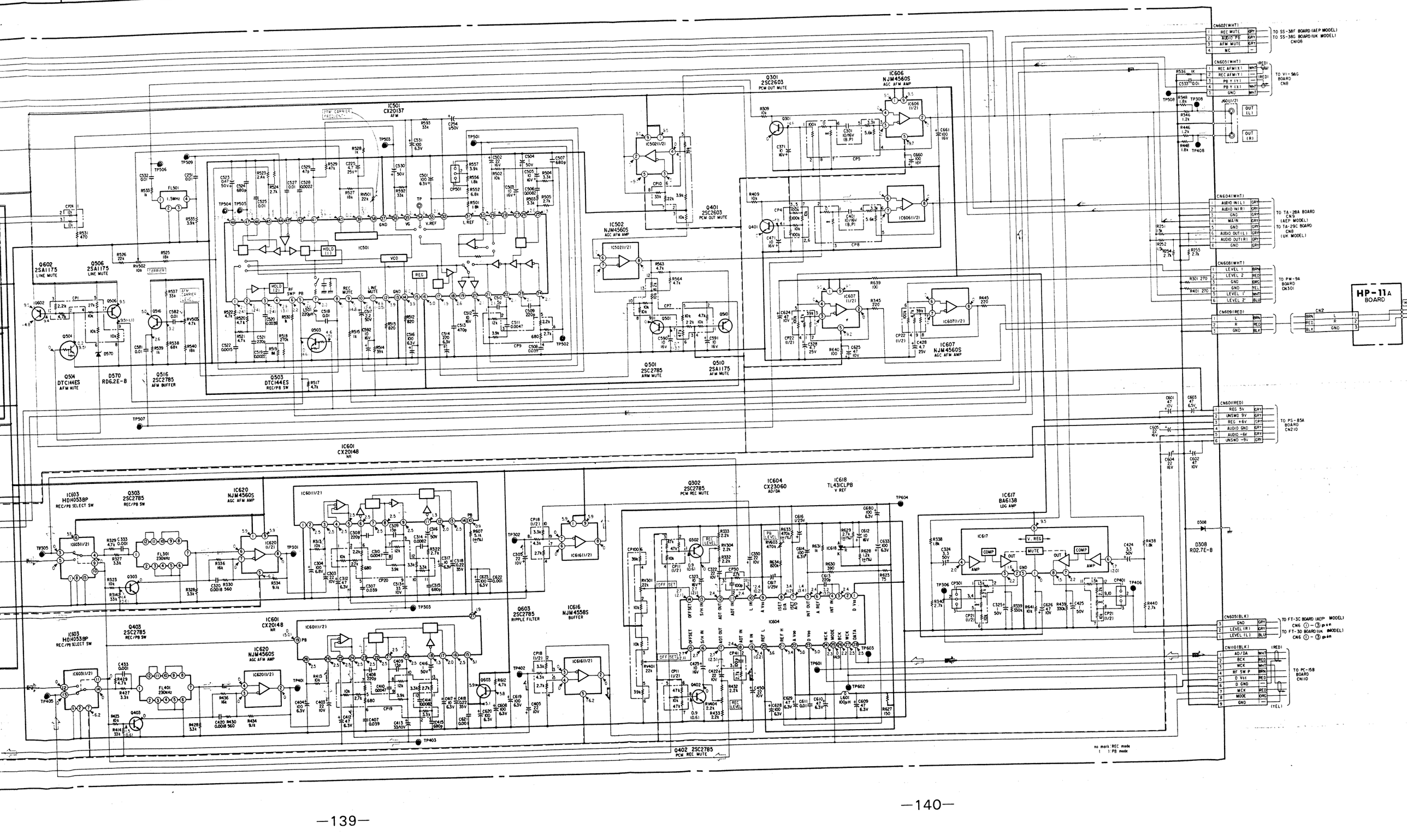
Q , IC	D	ADJ, TP
	214	
	212	
603	211	
291		
290		
		RV502
		RV501
214, 216		TP504
IC620		TP505
		TP509
		TP501
IC221 IC605		TP301
IC601		TP401
403, 303		TP502
IC501		
		TP402
		RV503
650		TP302
IC612		TP407
IC616		RV404
651 503		
516	650	TP602
IC610 652		TP603
IC603 510		TP604
IC604		TP601
		RV401 TP307
	301	
402		TP405
502 501	401	RV301
IC502 506		TP305
IC621 602		TP503
IC611 504		RV304
IC618 302		TP408
IC606		RV603
	652 570	
		TP308
301, 401	251	TP303
IC614		
		TP306
856 IC608		
IC617 855 IC609		
854 851		
IC613		TP403
		TP406
IC607 853		TP507
852		TP506
	308	
Q , IC	D	RV, TP

PC-14B (AUDIO), VJ-1A (VOLUME/JACK), HP-11A (FUNCTION SWITCH/DISPLAY TUBE) SCHEMATIC DIAGRAMS

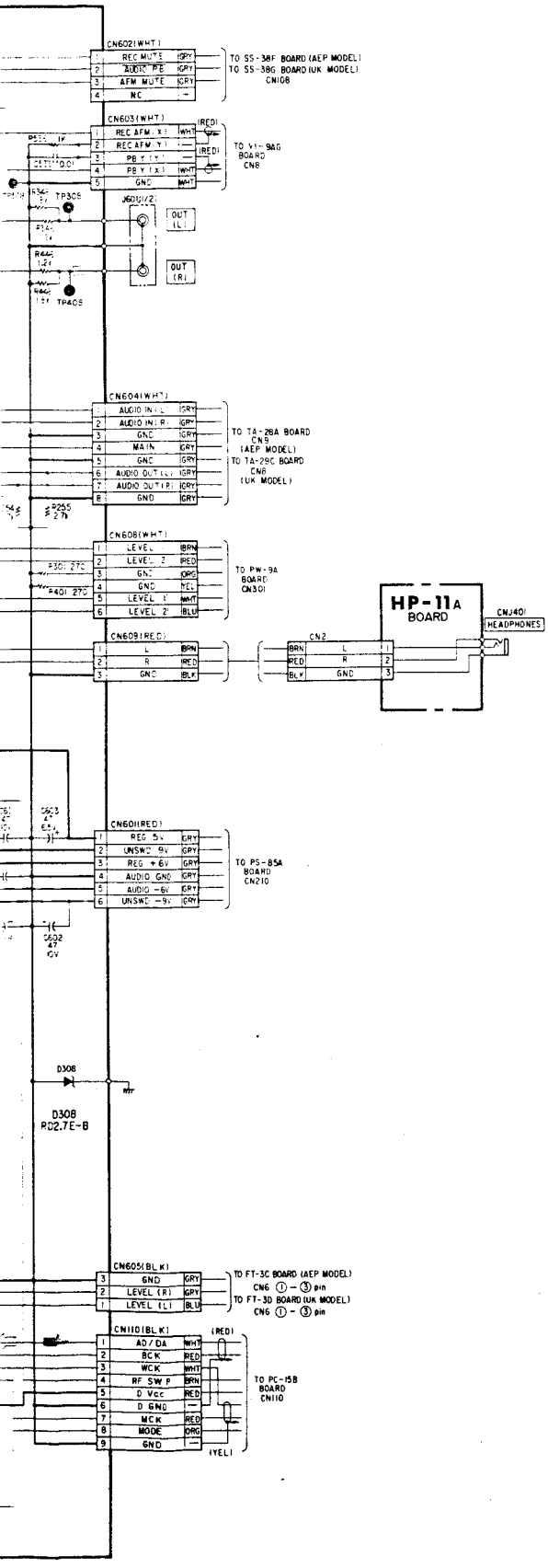
– Ref. No. PC-14B BOARD: 7000 series, HP-11A, VJ-1A BOARD: 6000 series –



15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31



29 | 30 | 31 | 32



- All capacitors are in μF unless otherwise noted, pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/6W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ.
- All variable and semi-fixed resistors have characteristics curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- : panel disignation.
- : adjustment for repair.
- : B + bus.
- : B – bus.
- The voltage value is a reference value between the grounding when the color bar signal is received from a color bar generator.
- All voltage are dc measured with a VOM (10MΩ)

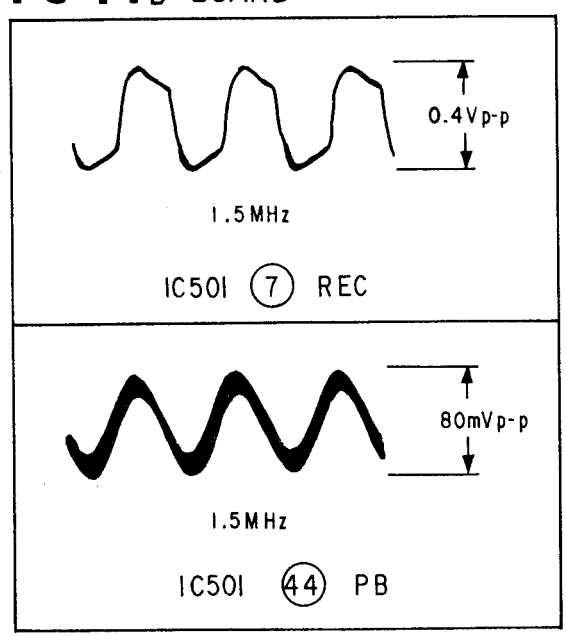
When indicating parts by reference number, please include the board name.

- **Signal path**

: REC AUDIO SIGNAL

: PB AUDIO SIGNAL

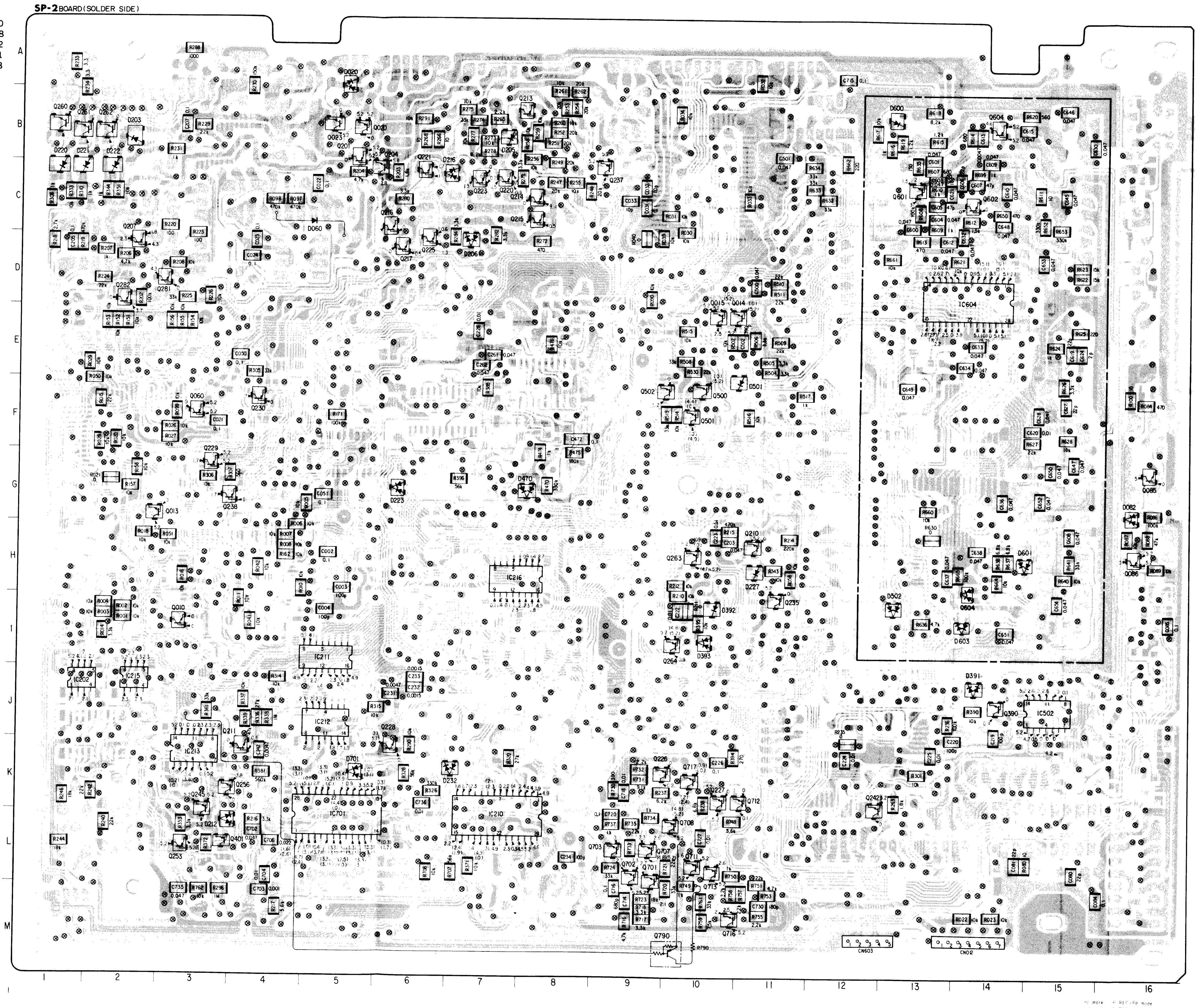
PC-14B BOARD



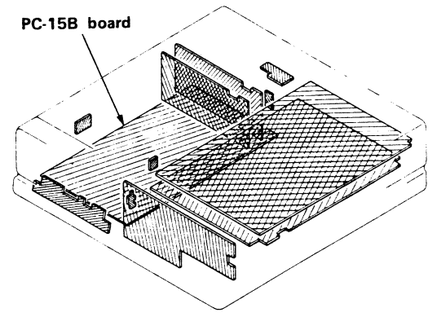
(PCM AUDIO PROCESS) PRINTED WIRING BOARD

—Ref. No. SP-2 BOARD : 4, 000 series—

TP603	G-20
TP604	D-18
TP607	G-22
TP608	C-21
TP609	E-18



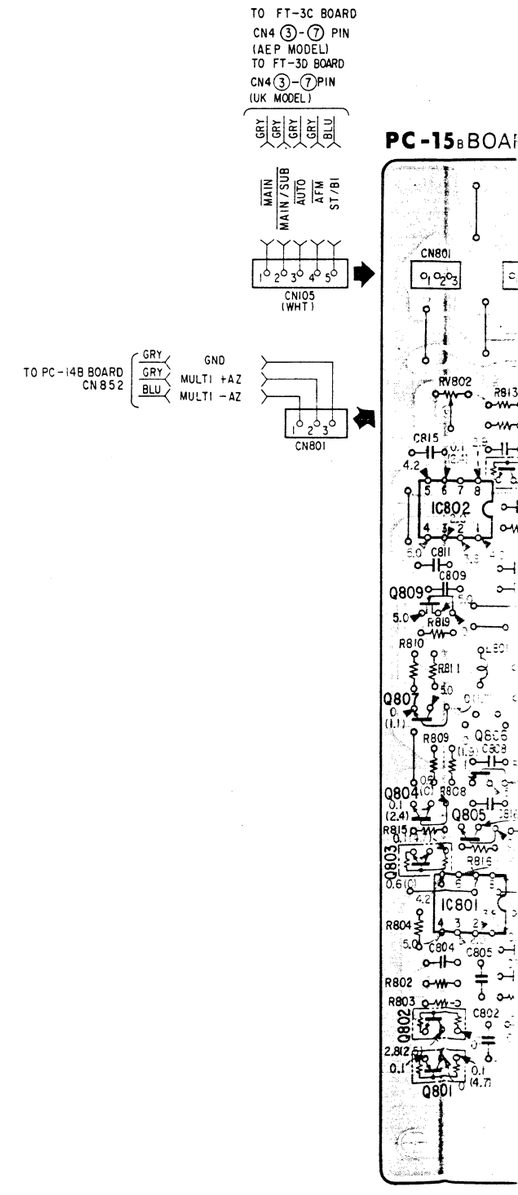
PC-15B board



- ○— : parts extracted from the component side.
- ●— : parts extracted from the conductor side.
- ▒▒ : conductor side pattern.
- ▒▒ : B + pattern.
- Digital transistor (PC-15B: Q003, 005, 006, 007, 008, 009, 010, 011, 012, 163, 801, 802, 803, 808, 905) transistor with resistors.
  Refer to the PC-15B board schematic diagram for digital transistor.

PC-15B (PCM AUDIO) PRINTED WIRING BOARD

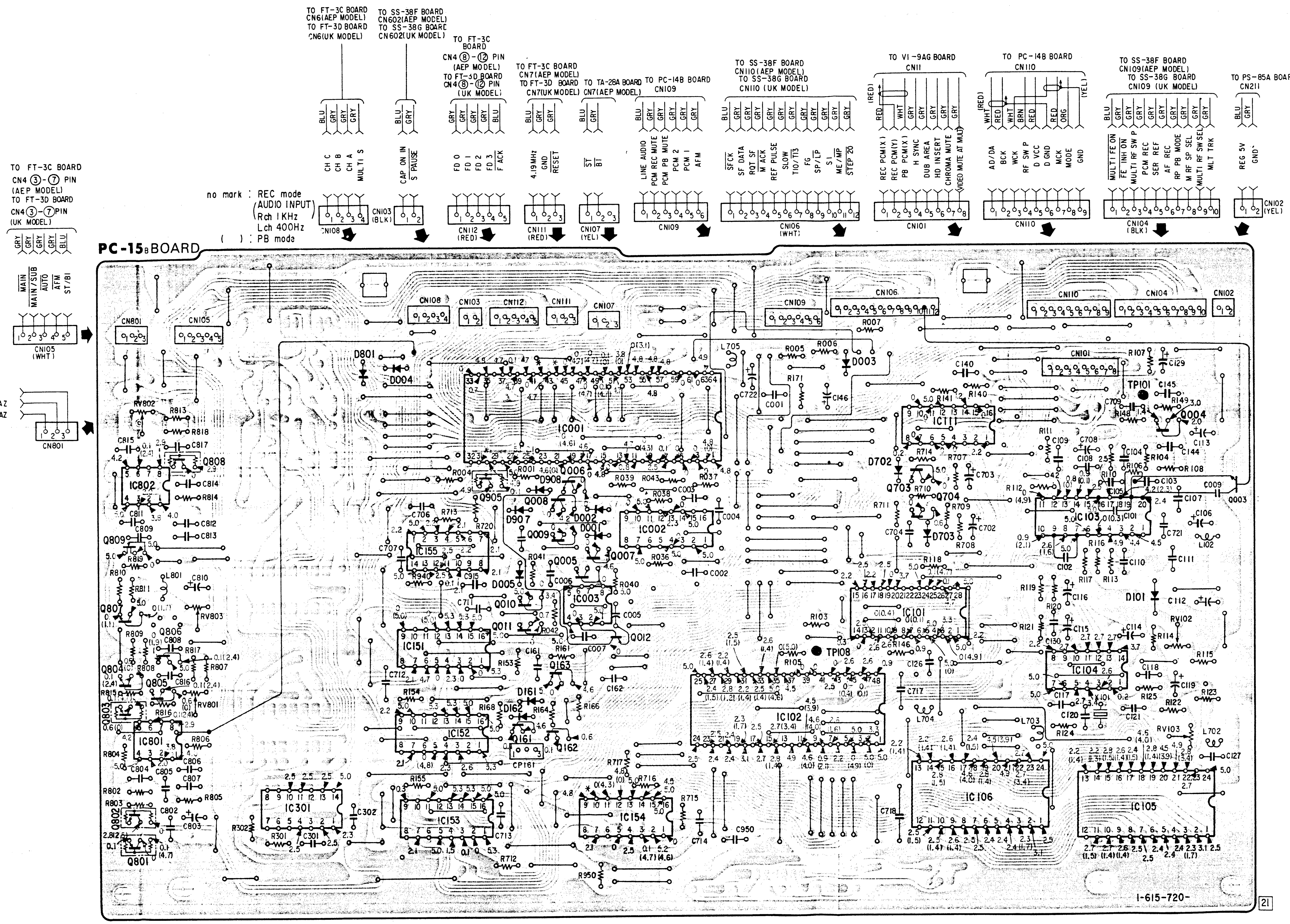
– Ref. No. PC-15B BOARD: 8000 series –



WIRING BOARD

3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

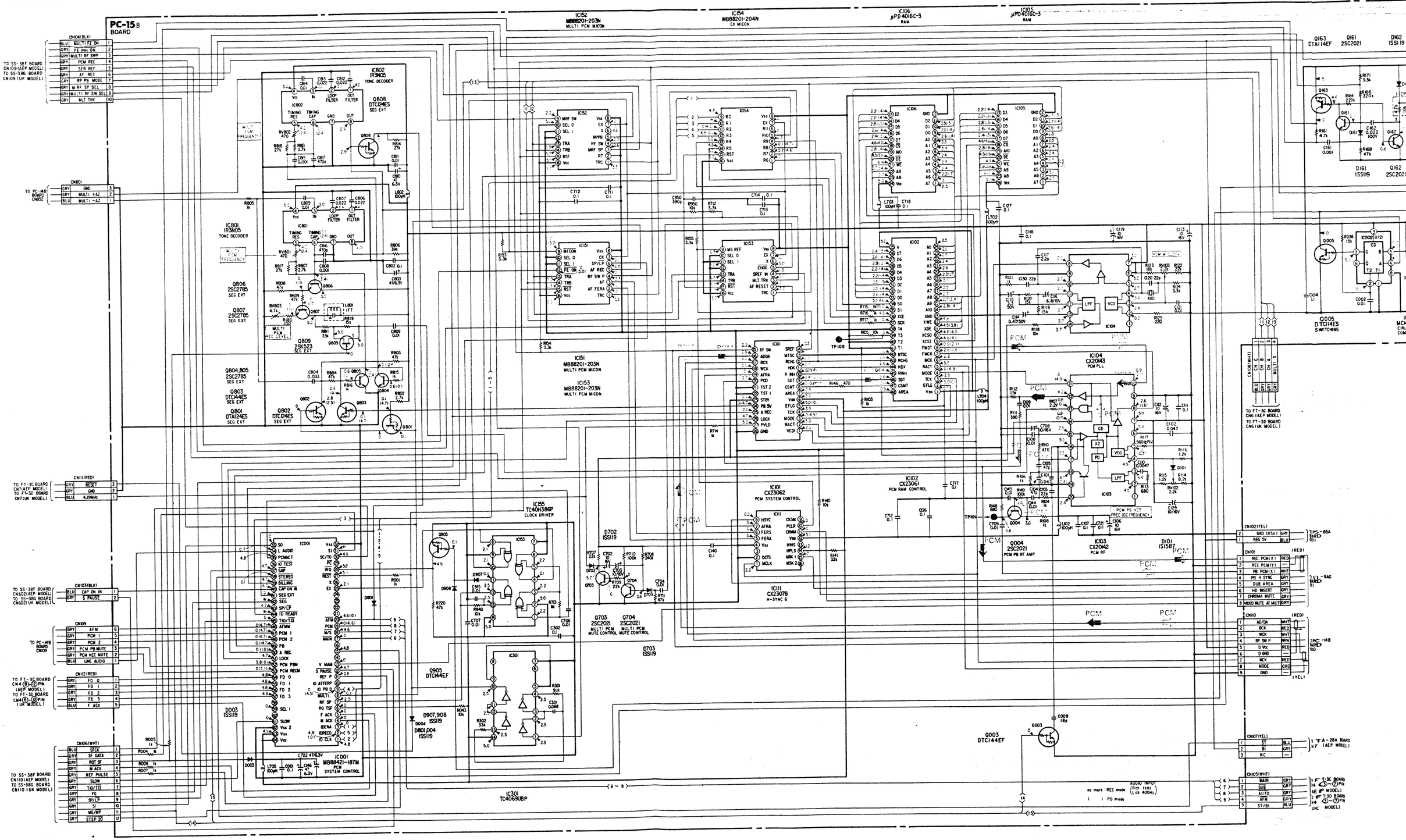
eries –



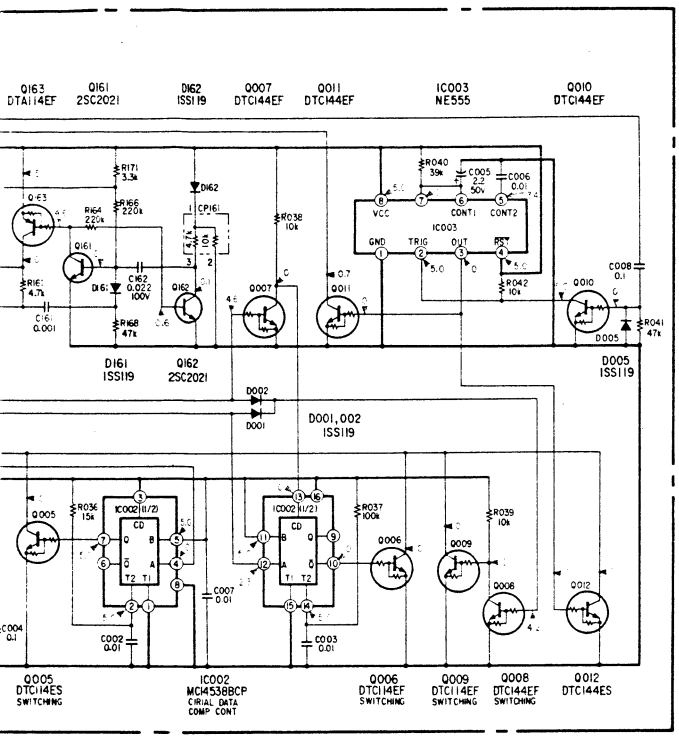
Q, IC	D	ADJ,TP
	801 003 004	
IC001		TP101 RV802
IC111 004		
808 703 905 006	911 908 702	
IC802 003 704 008 009 IC103	907 002	
809 IC002 IC301 007 IC155	001 703	
005	005	
IC003 807 010 IC101 011	101	RV803
806 012 IC151	RV102	TP108
804 163 805 IC104	161	
803	162	RV801
IC102 161 IC801 162 IC152		RV103
IC301, IC106 802 IC153 IC154 801 IC105		

PC-15B (PCM AUDIO) SCHEMATIC DIAGRAM

– Ref. No. PC-15B BOARD: 8000 series –



16	17	18	19



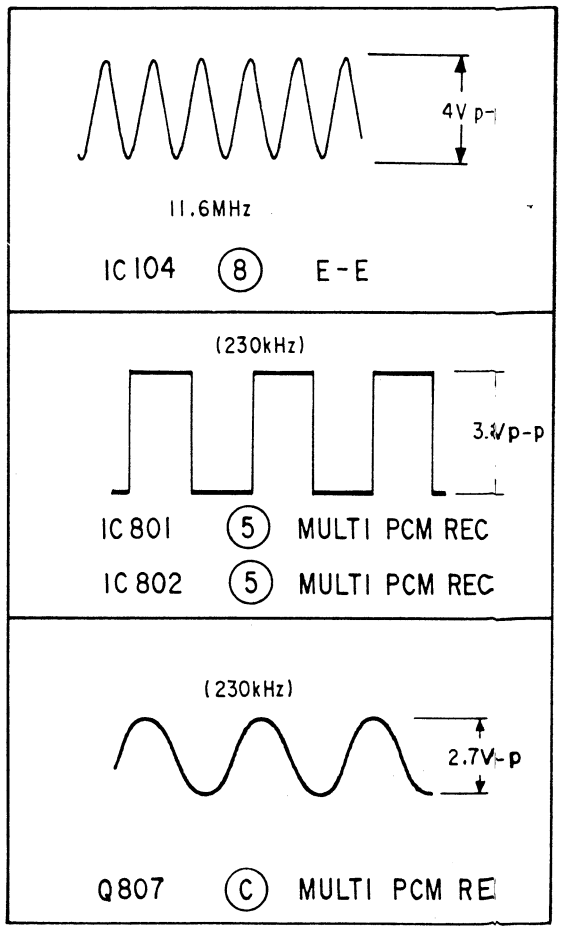
- All capacitors are in μF unless otherwise noted, pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/6W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ.
- All variable and semi-fixed resistors have characteristics curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- : panel disignation.
- : adjustment for repair.
- : B + bus.
- The voltage value is a reference value between the grounding when the color bar signal is received from a colorbar generator.
- All voltage are dc measured with a VOM (10MΩ)

When indicating parts by reference number, please include the board name.

- **Signal path**

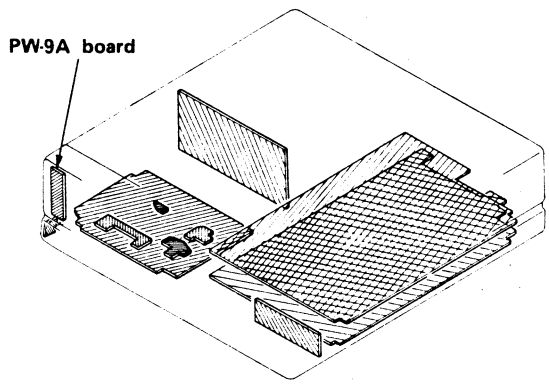
F : REC AUDIO SIGNAL
PB AUDIO SIGNAL

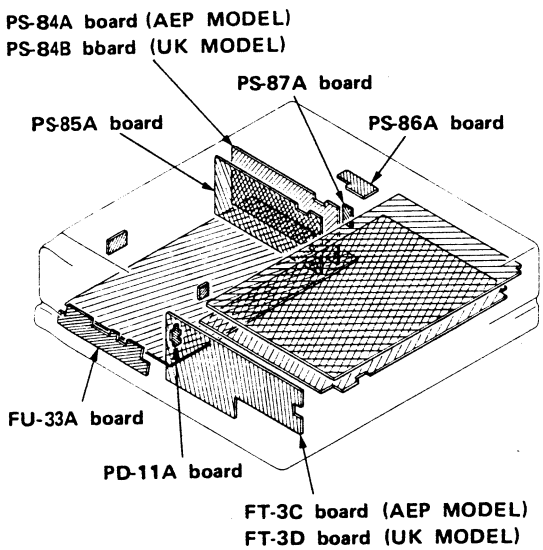
PC-15B BOARD



POWER SUPPLY, TIMER

- ○— : parts extracted from the component side.
- ●— : parts extracted from the conductor side.
- : conductor side pattern.
- : component side pattern.
- : B + pattern.
- : B – pattern.
- Digital transistor (FT-3C/D : Q006, PS-85A : Q211, 212) transistor with resistors.
  Refer to the FT-3C/D, PS-85A boards schematic diagram for digital transistor.



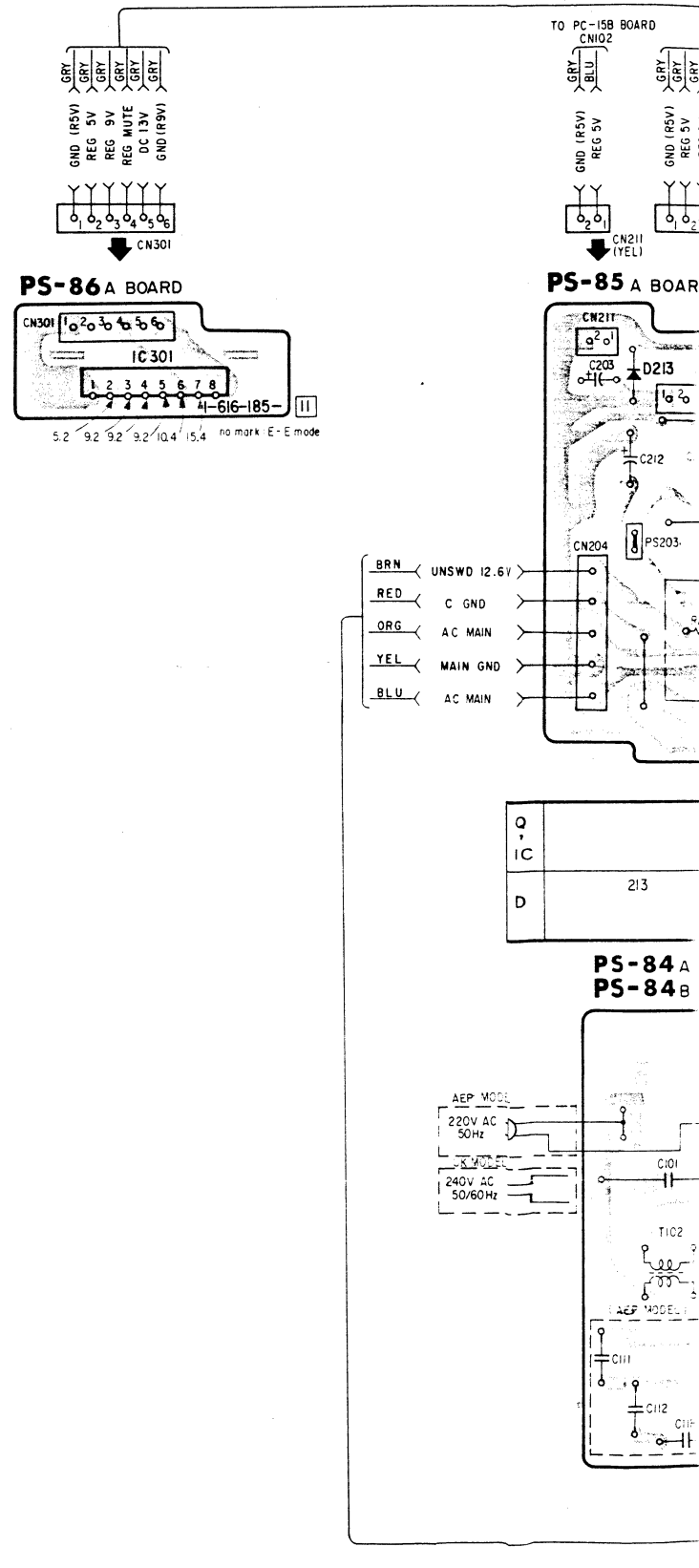


FT-3C/D (FUNCTION) SWITCH/DISPLAY TUBE), PS-84A/B, PS-8

1 2 3 4

– Ref. No. PS-84A BOARD (AEP MODEL), PS-84B BOARD (UK MODE

A B C D E F G H I J

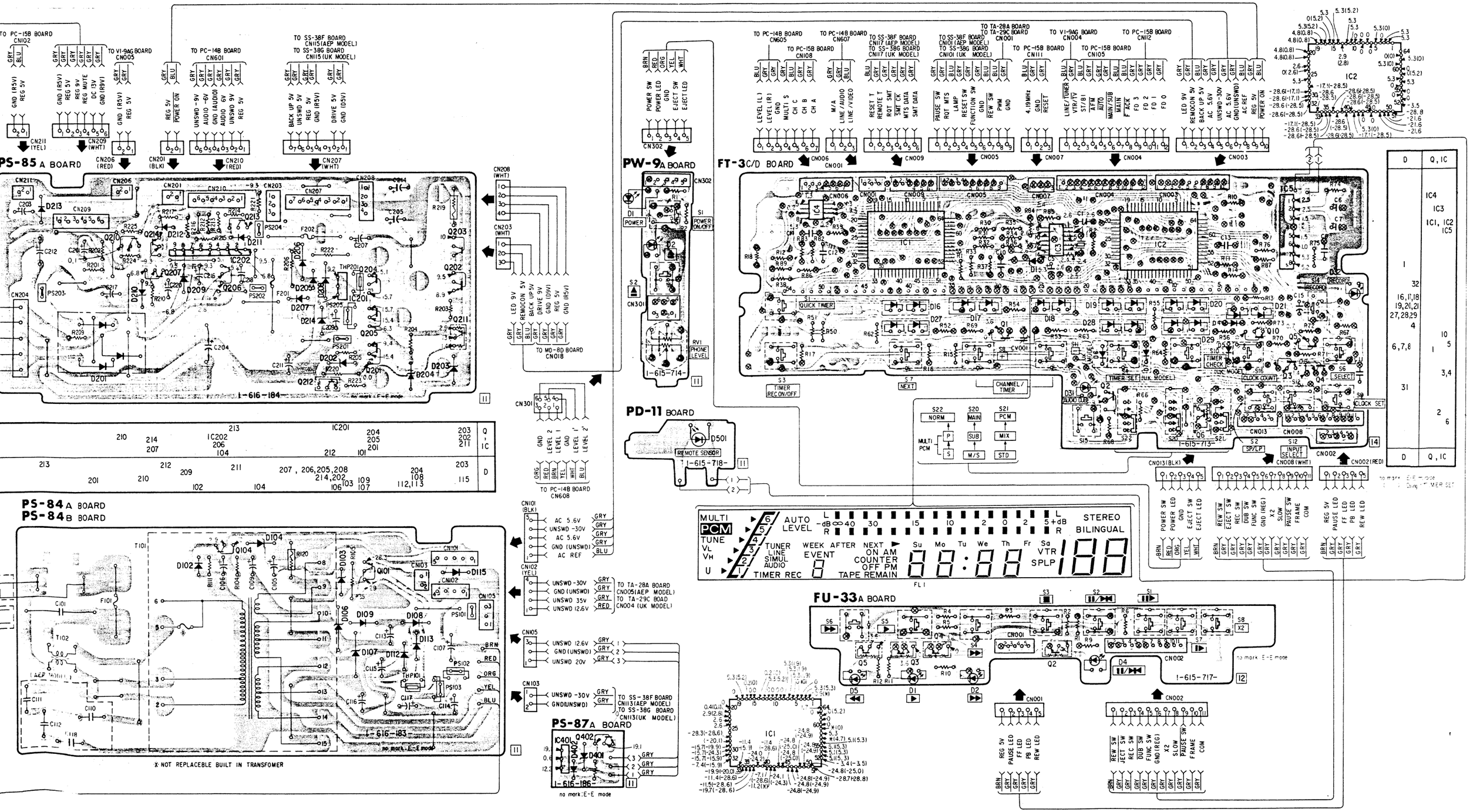


PS-84A BC
PS-84B BC

PS-84A/B, PS-85A (POWER SUPPLY), PS-86A (CONSTANT POWER SUPPLY VOLTAGE), PS-87A (REGULATOR), FU-33A (FUNCTION SWITCH), PW-9A (POWER SWITCH/EJECTOR SWITCH), PD-11 (REMOTE CONTROL LIGHT RECEIVING) PRINTED WIRING BOARD

4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19

ARD (UK MODEL), PS-85A, PS-86A, PS-87A, PD-11 BOARD: 9000 series, FT-3C BOARD (AEP MODEL), FT-3D BOARD (UK MODEL): 9100 series, FU-33A, PW-9A BOARD: 6000 series –



PS-84A BOARD ..... AEP MODEL
PS-84B BOARD ..... UK MODEL

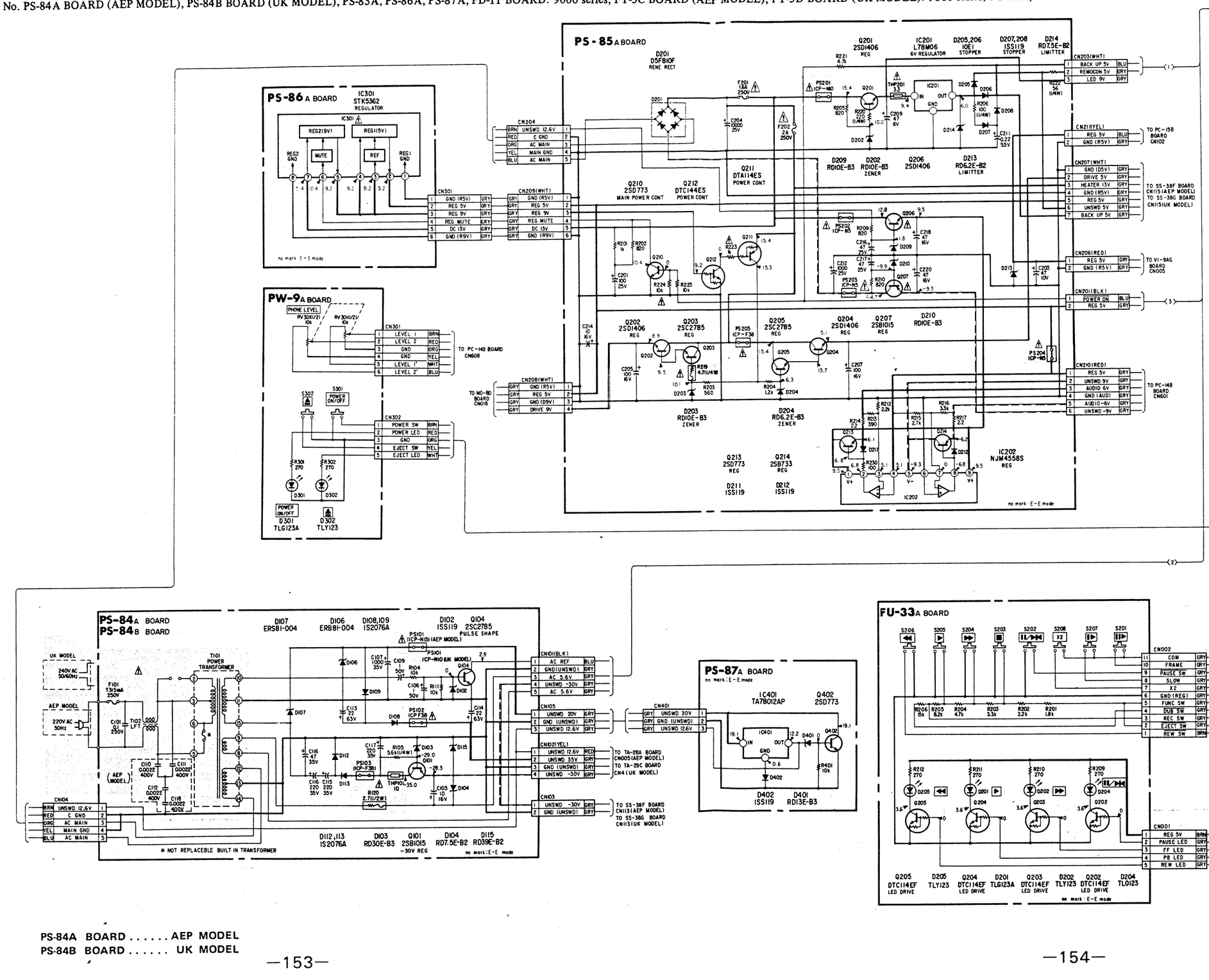
FT-3C BOARD ..... AEP BODEL
FT-3D BOARD ..... UK MODEL

FT-3C/D (FUNCTION SWITCH/DISPLAY TUBE), PS-84A/B, PS-85A (POWER SUPPLY), PS-86A (CONSTANT POWER SUPPLY VOLTAGE), PS-87A (REGULATOR), FU-33A (FUNCTION SWITCH), PW-9A (POWER SWITCH/EJECTOR SWITCH), PD-11 (REMOTE CONTRO

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

– Ref. No. PS-84A BOARD (AEP MODEL), PS-84B BOARD (UK MODEL), PS-85A, PS-86A, PS-87A, PD-11 BOARD: 9000 series, FT-3C BOARD (AEP MODEL), FT-3D BOARD (UK MODEL): 9100 series, FU-33A, PW-9A BOARD: 6000 series –

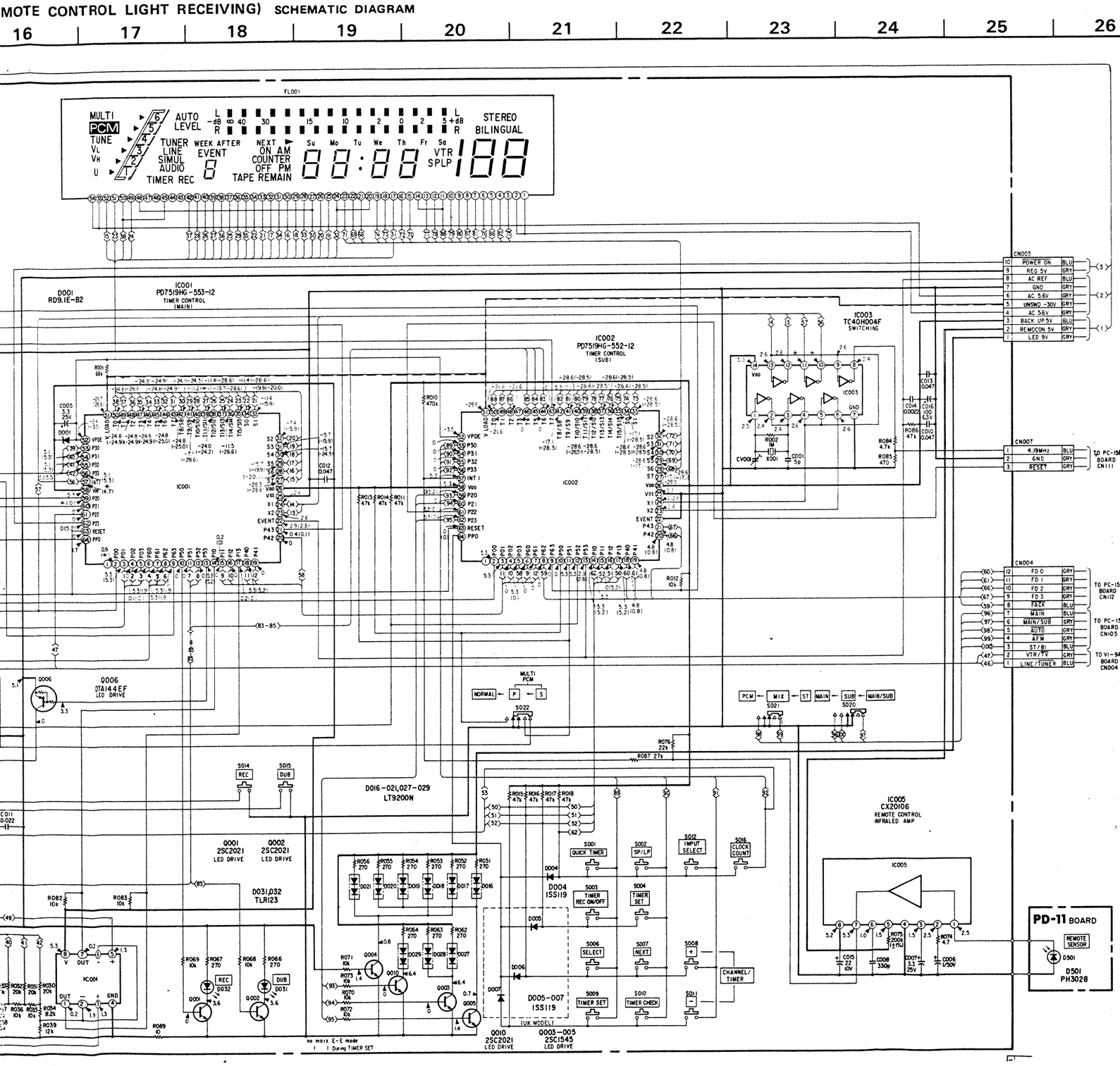
A B C D E F G H I J



PS-84A BOARD ..... AEP MODEL
PS-84B BOARD ..... UK MODEL

FT-3C BOARD ..... AEP MODE
FT-3D BOARD ..... UK MODE

(REMOTE CONTROL LIGHT RECEIVING) SCHEMATIC DIAGRAM



..... AEP BODEL
..... UK MODEL

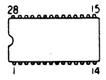
- All capacitors are in μF unless otherwise noted, pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/6W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ.
- All variable and semi-fixed resistors have characteristics curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- : panel disignation.
- : adjustment for repair.
- : B + bus.
- : B − bus.
- The voltage value is a reference value between the grounding when the color bar signal is received from a color bar generator.
- All voltage are dc measured with a VOM (10MΩ)

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

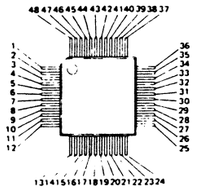
When indicating parts by reference number, please include the board name.

4-3. SEMICONDUCTORS

CX20135
CX20136
CX20148
CX22032
CX23060
CX23062

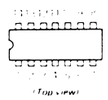


CX20034



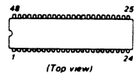
BA6138
NJM4560S
NJM4562S-D
TA7357AP

CX20143
CXK1001P
HD14069UBP
MB84069UB
MSM4069UBRS
TC4011BP
TC4030BP
TC4069UBP
TC40H386P
TDA4944
μPD4069UBC

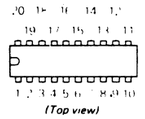


CX20106
CX20106A
M54572L
μPC1391HA

CX20130
CX20131
CX20132
CX20137
CX23061

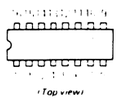


CX20142

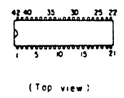


CX20144
CX20147
HM6116LP-2
HM6116LP-3
MB8416A-15
MSM5128-12RS
MSM5128-15RS
μPD4016C-3
μPD4016C-5

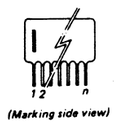
CX20145
CX22031
CX23078
HD14052BP
HD14053BP
HD14526BP
MB84052B
MB88201-203N
MC14094BCP
MC14538BCP
MB84053B
MC14094BCP
MC14046BCP
MSM4094RS
TA7607AP
TC40H157P
TC4052BP
TC4053BP
TC4526BP
μPD4052BC



CX23064

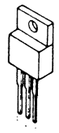


HBD1754B

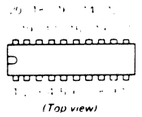


IR3N05
NJM2903D
NJM4558S

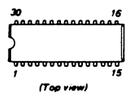
L78M06
NJM78M06A



M50761-692P



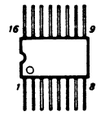
M50763-633SP



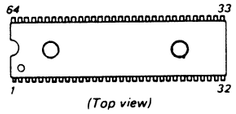
M51841P
NJM555D
μPC1555C
μPC358C
μPC393C

MB3763P

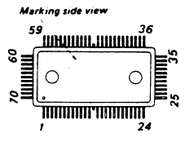
MB88201-203N
MB88201-204N



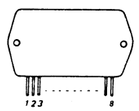
MB88421-187M



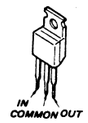
MB88551-159N



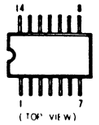
STK5362



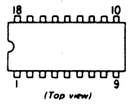
TA78012AP



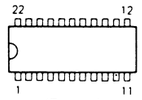
TC40H004F



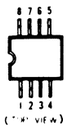
TDA2546A



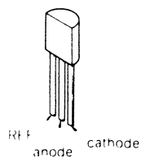
TDA4940



μPC393G
μPC393G2

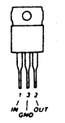


TL431CLP
TL431CLPB

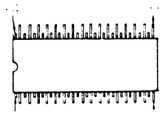


μPC574J

μPC7812H

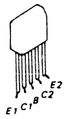


μPD7519HG-552-12
μPD7519HG-553-12



2SA798

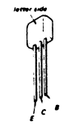
2SA995



2SA844
2SA933S
2SB740
2SC1740S
2SC535

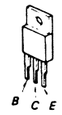
2SA1048	DTA114ES
2SA1048-GR	DTA124ES
2SA1175	DTA144ES
2SC2458	DTC114ES
2SC2603	DTC124ES
2SC2603-F	DTC124XS
2SC403SP	DTC144ES
2SC403SP-3	

2SA1175
2SC2785



2SB733-4
2SB734
2SD773

2SB1015
2SD1266
2SD1406
2SD1585



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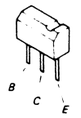
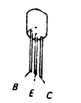
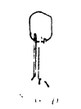
2SC2021
DTA144EF
DTC114EF
DTC144EF



2SC2026



2SK105A-30



2SK523-L1
2SK523-L2

10E-1
10E-2
ERB12-01
ERB12-02
GP08D

1S1585	HZ7.5EB3
1S1587	HZ9.1EB2
1S2076A	RD10EB3
EQA02-05C	RD13E-B
EQA02-05D	RD18E-B
EQA02-05E	RD2.7E-B
EQA02-06E	RD2.7EL1
EQA02-09B	RD30EB3
EQA02-10B	RD39EB1
EQA02-13AB5	RD39EB2
EQA02-16B	RD39EB3
EQA02-17A	RD30EB4
EQA02-17B	RD39EB2
EQA02-18AB5	RD5.1E-B
EQA02-30A	RD6.2EB
HZ10EB3	RD6.2EB1
HZ18EB1	RD6.2EB2
HZ18EB2	RD6.2EB3
HZ18EB3	RD7.5E-B1
HZ10EB3	RD7.5EB2
HZ6.2EB3	RD7.5EB3
HZ7.5EB1	RD9.1EB2
HZ7.5EB2	

1SS119
1SS133
1SS148

D5FB10F
D5FB20F

MC911

MC921

MC931

NJL5141E

NJL7141E

PH302B

ERB81-004
SIBO1-02

TLG123A
TLO123
TLR123
TLY123

GL450

LTV200N

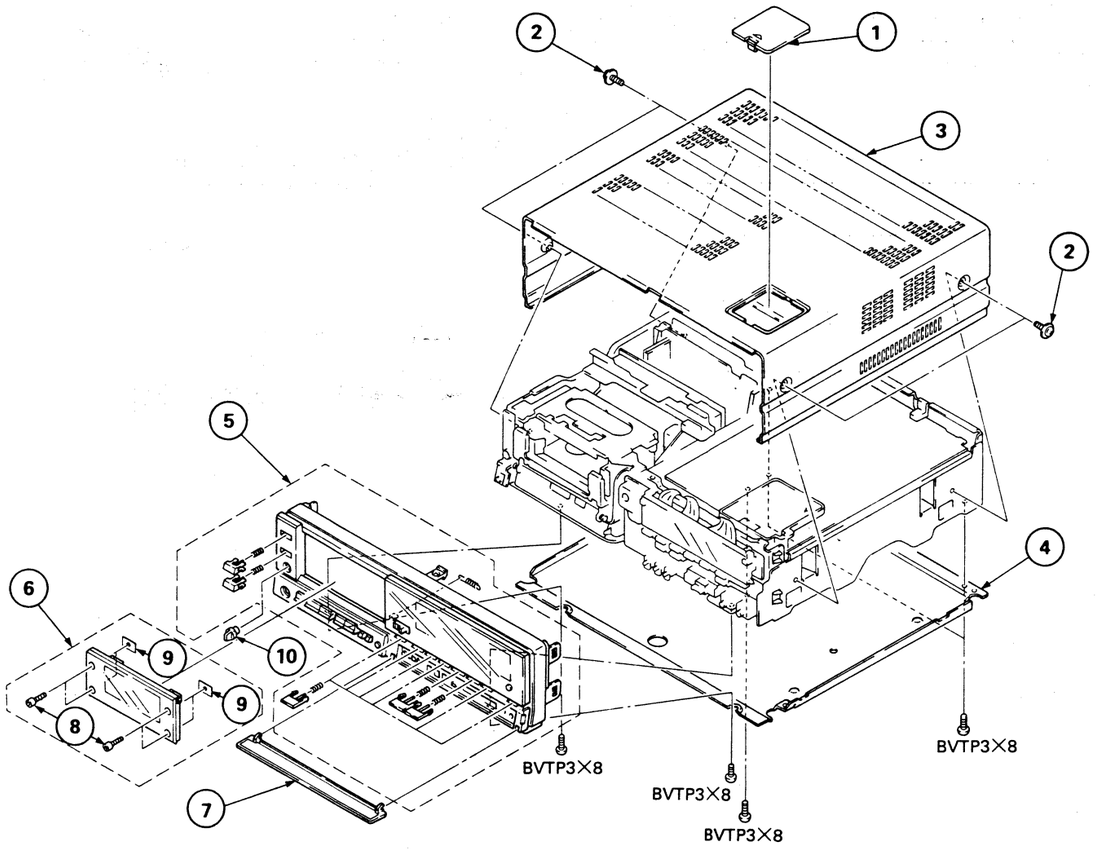
SECTION 5
EXPLODED VIEWS

NOTE:

- Itmes with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

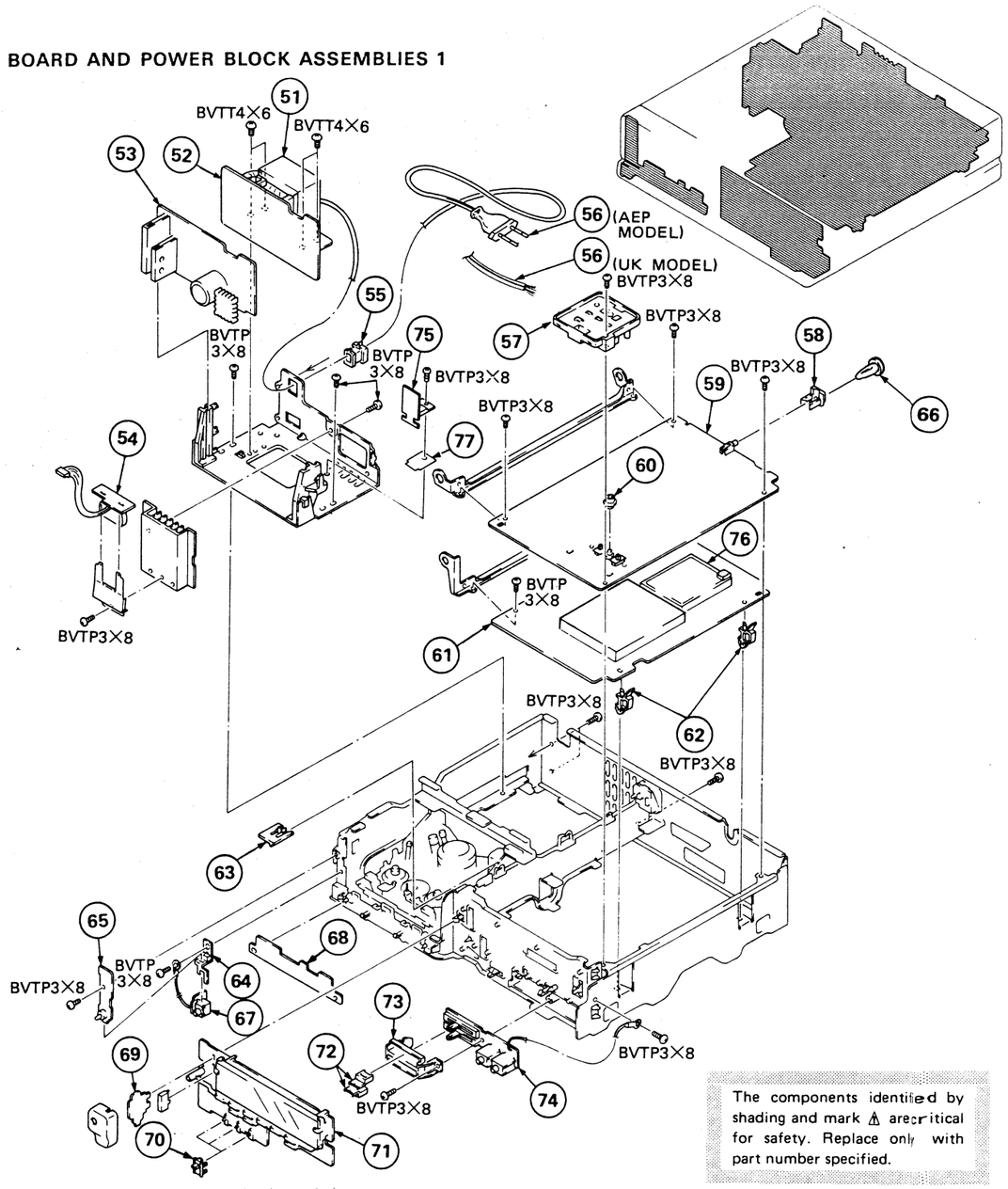
The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

5-1. FRONT PANEL AND CASE (UPPER, LOWER) ASSEMBLIES



No.	Part No.	Description	Remark
1	*2-352-647-01	LID, PRESET	
2	4-886-821-01	SCREW, M3 CASE	
3	X-3689-533-2	CASE ASSY (SEAL), UPPER	
4	*3-691-907-03	PLATE, BOTTOM	
5	X-3711-917-1	PANEL ASSY, FRONT	
6	X-3711-916-1	DOOR ASSY, CASSETTE	
7	X-3711-915-1	DOOR ASSY	8,9
8	3-689-039-01	SCERW (M2x5), SMALL	
9	*3-689-040-01	NUT, PLATE	
10	3-711-980-01	KNOB, HP	

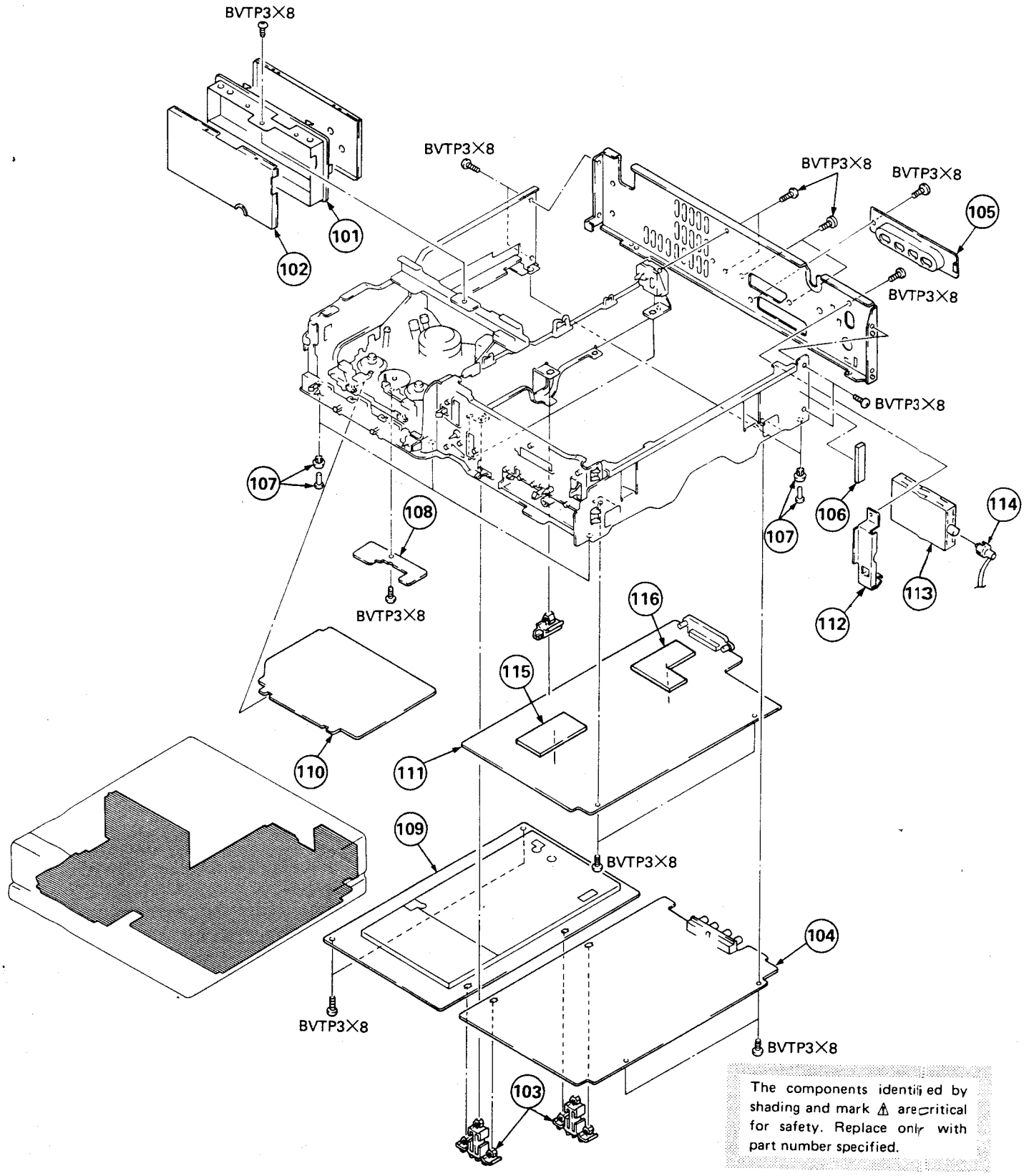
5-2. BOARD AND POWER BLOCK ASSEMBLIES 1



The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

No.	Part No.	Description	Remark
51	⚠1-448-236-11	TRANSFORMER, POWER T101	
52	*A-7070-117-A	PS-84A BOARD, COMPLETE (AEP MODEL)	
	*A-7070-121-A	PS-84B BOARD, COMPLETE (UK MODEL)	
53	*A-7070-118-A	PS-85A BOARD, COMPLETE	
54	*1-616-185-11	PS-86A BOARD	
55	⚠3-703-244-00	BUSHING (2104), CORD	
56	⚠1-534-817-XX	CORD, POWER(AEP MODEL)	
	⚠1-551-884-00	CORD, POWER (UK MODEL)	
57	X-3689-519-1	KEYBOARD ASSY, PRESET (AEP MODEL)	
	X-3689-023-2	KEYBOARD ASSY, PRESET (UK MODEL)	
58	3-691-912-01	PLATE, ORNAMENTAL, REMOTE	
59	*A-7060-156-B	SS-38F BOARD, COMPLETE (AEP MODEL)	
	*A-7060-163-B	SS-38G BOARD, COMPLETE (UK MODEL)	
60	3-691-971-01	KNOB, SHARPNESS	
61	*A-7060-157-A	TA-28A BOARD, COMPLETE (AEP MODEL)	
	*A-7060-161-A	TA-29C BOARD, COMPLETE (UK MODEL)	
62	3-682-047-01	HOLDER (A), PC BOARD	
63	*3-691-916-01	COVER, CAP	
64	*3-696-807-01	HOLDER, HP JACK	
65	*1-615-714-11	PW-9A BOARD	
66	2-249-250-00	CLIP (SMALL), CANOE	
67	*A-7060-148-A	HP-11A BOARD, COMPLETE	
68	*1-615-717-11	FU-33A BOARD	
69	*1-615-718-11	PD-11A BOARD	
70	3-689-518-01	KEY, SLIDE	
71	*A-7060-158-A	FT-3C BOARD, COMPLETE (AEP MODEL)	
	*A-7060-162-A	FT-3D BOARD, COMPLETE (UK MODEL)	
72	3-689-519-01	KEY, VOL	
73	*3-689-536-01	GUIDE, SLIDE	
74	*1-615-715-11	VJ-1A BOARD	
75	*1-616-186-11	PS-87A BOARD	
76	⚠1-463-577-31	TUNER, ET (BT-883AD)(AEP MODEL)	
	⚠1-463-593-21	TUNER, ET (BT-882AD) (UK MODEL)	
77	2-371-561-00	BUSHING (P), INSULATING	

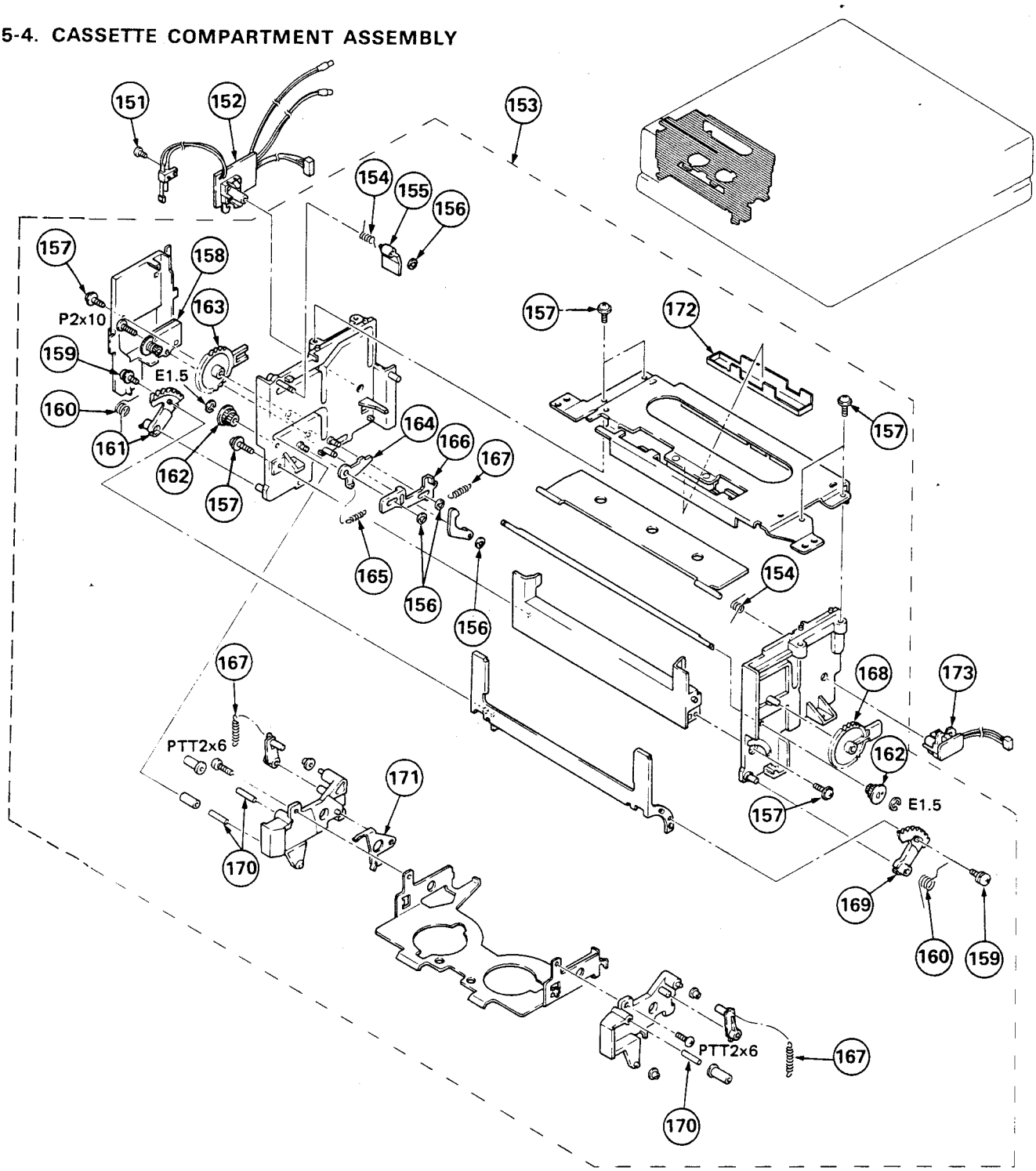
5-3. BOARD ASSEMBLY 2



The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

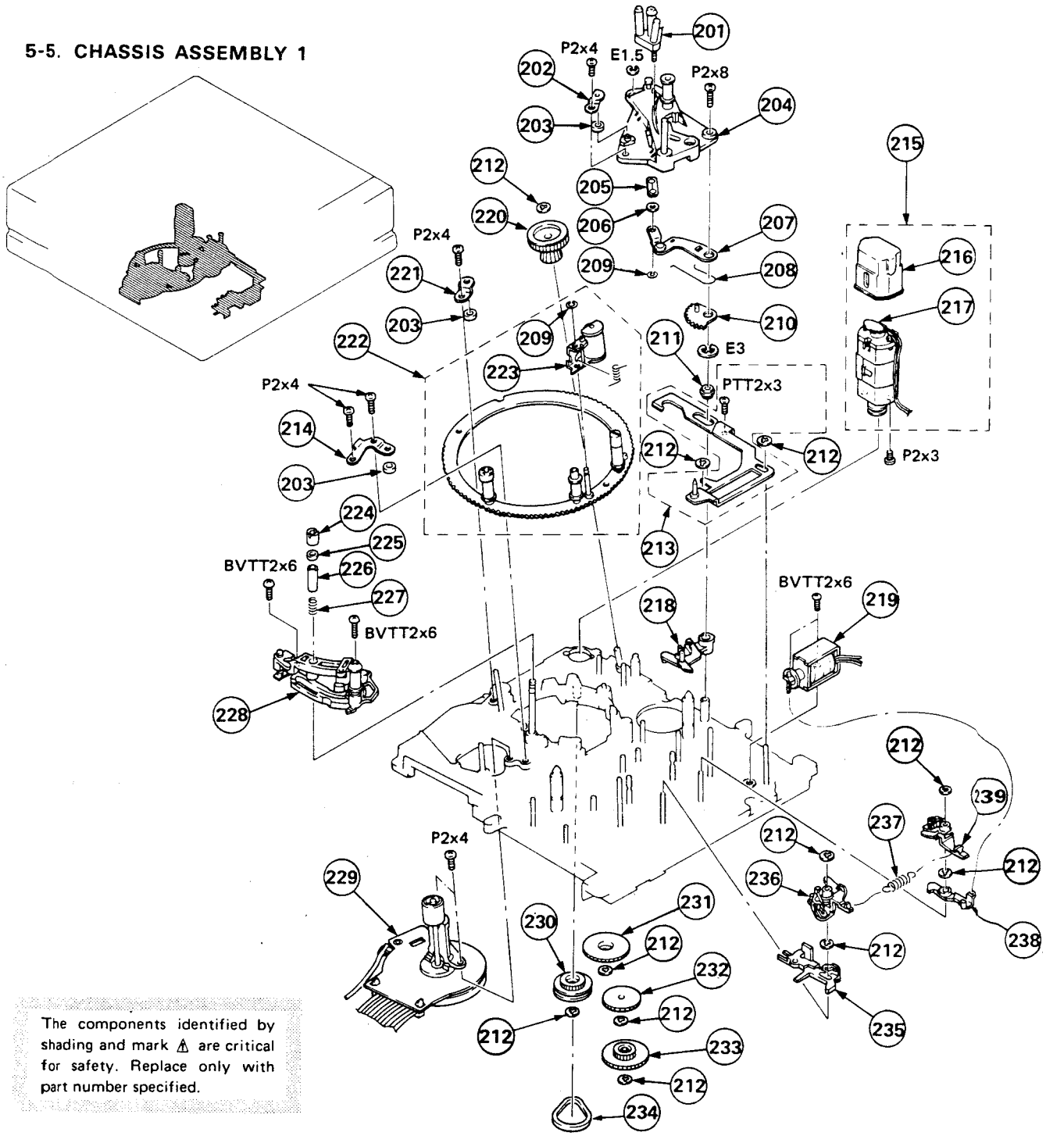
No.	Part No.	Description	Remark
101	*A-7060-160-A	RP-25D BOARD, COMPLETE	
102	*3-689-066-01	LID, SHIELD CASE, RP	
103	*3-682-081-00	HOLDER, PCB	
104	*A-7060-154-A	PC-14B BOARD, COMPLETE	
105	3-689-580-01	PLATE (HA), ORNAMENTAL, JACK	
106	4-864-324-11	SPACER	
107	3-670-155-11	LEG	
108	*1-615-309-11	RS-11A BOARD	
109	*A-7060-159-A	PC-15B BOARD, COMPLETE	
110	*A-7060-132-A	MD-8D BOARD, COMPLETE	
111	*A-7060-610-A	VI-9AG BOARD, COMPLETE	
112	*3-689-577-01	BRACKET (HA), ANTENNA	
113	⚠ 1-464-471-11	BOOSTER MIXER, RF MODULATOR RF U-831 (AEP MODEL)	
	⚠ 1-464-470-11	BOOSTER MIXER, RF MODULATOR RF U-830 (UK MODEL)	
114	*1-555-110-00	CABLE, PIN	
115	*1-617-208-11	SK-9 BOARD	
116	*1-619-504-11	NC-5 BOARD	

5-4. CASSETTE COMPARTMENT ASSEMBLY



No.	Part No.	Description	Remark
151	3-669-479-11	SCREW (1.4X3.5), TAPPING	
152	*1-615-317-11	TE-2A BOARD	
153	A-7090-025-A	CASSETTE COMPARTMENT BLOCKASSY	154-172
154	3-689-031-01	SPRING, TORSION	
155	3-689-017-01	LEVER, PUSH	
156	3-669-465-00	WASHER (1.5), STOPPER	
157	3-669-480-11	+ PTPWH 2	
158	3-681-528-11	DAMPER	
159	3-669-607-00	+PSW (SMALL ROUND) 2.6	
160	3-689-015-01	SPRING, TORSION	
161	3-689-051-01	GEAR (LEFT), DOOR	
162	3-689-007-01	GEAR, MIDWAY	
163	3-689-005-01	GEAR (LEFT), DRIVING	
164	3-689-049-01	STOPPER, C.L.	
165	3-689-014-01	SPRING, TENSION	
166	3-689-048-01	SLIDER, C.L.	
167	4-602-490-11	SPRING, TENSION	
168	3-689-006-01	GEAR (RIGHT), DRIVING	
169	3-689-052-01	GEAR (RIGHT), DOOR	
170	3-703-357-06	PIN, PARALLEL (DIA. 1.6X14)	
171	3-689-056-03	PLATE, RELEASE, LOCK, LID	
172	*3-689-016-03	COVER, LAMP	
173	*1-615-316-11	TE-1A BOARD	

5-5. CHASSIS ASSEMBLY 1

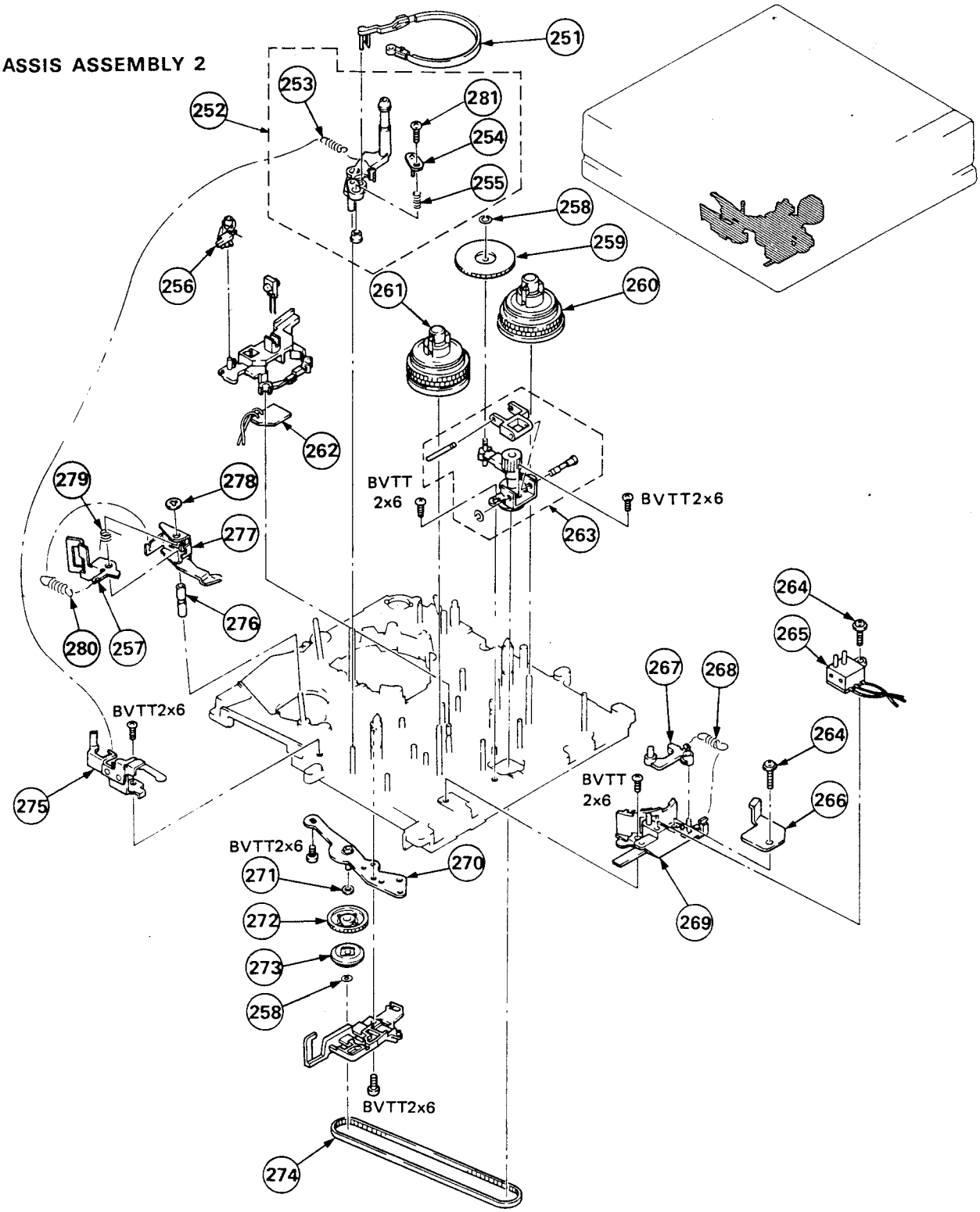


The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

No.	Part No.	Description	Remark
201	X-3686-502-1	BASE ASSY, GUIDE	
202	*3-686-503-01	RETAINER, ROLLER	
203	3-697-538-01	ROLLER, RING	
204	X-3686-577-1	CHASSIS ASSY, GUIDE, SLANT	
205	3-686-663-01	WASHER, STOPPER, 2 GANG	
206	3-701-436-21	WASHER, POLYEHTHYLENE	
207	X-3686-537-1	ARM ASSY	
208	3-686-701-01	SPRING	
209	3-315-384-31	WASHER, STOPPER	
210	3-699-509-01	GEAR, SECTOR	
211	3-686-537-01	RETAINER, LOCK SLODER	
212	3-669-465-00	WASHER (1.5), STOPPER	
213	*A-7040-072-A	SLIDER ASSY, LOCK	
214	*3-686-675-01	STOPPER, RING	
215	⚠A-7090-030-A	MOTOR ASSY, L (LOADING) M904	216,217
216	*3-686-757-01	CAP, SHIELD, L MOTOR	
217	1-161-057-00	CAP,CERAMIC 0.033MF C901	
218	*3-686-636-01	ARM, T.S RELEASE	
219	⚠1-454-377-11	SOLENOID, PLUNGER (BRAKE) PM901	
220	3-697-518-01	GEAR, NO.10	
221	*3-686-911-01	PLATE, TOP, ROLLER	

No.	Part No.	Description	Remark
222	A-7040-007-A	RING ASSY, LOADING	209,223
223	X-3686-576-1	ARM ASSY, PINCH ROLLER	
224	3-686-724-01	NUT, GUIDE	
225	*3-686-894-01	FLANGE, #3 #4 GUIDE	
226	3-686-912-01	GUIDE, #3 #4	
227	3-669-609-00	SPRING, COMPRESSION	
228	*A-7040-054-A	GUIDE (P) ASSY, ENTRANCE	
229	8-838-094-01	MOTOR, DC (BHF-2800C) (CAPSTAN)	M902
230	X-3686-514-1	GEAR ASSY, NO.1	
231	3-686-508-01	GEAR, NO.2	
232	3-686-545-01	GEAR, NO.3	
233	3-686-544-01	GEAR, NO.4	
234	3-686-546-01	BELT, L- MOTOR	
235	*3-686-629-01	SLIDER,SELECTION,UPPER & LOWE	
236	X-3686-573-1	BRAKE ASSY, MAIN, SUPPLY	
237	3-686-882-01	SPRING, TENSION	
238	*3-686-635-01	ARM, P	
239	X-3686-574-1	BRAKE ASSY, MAIN, TAKE-UP	

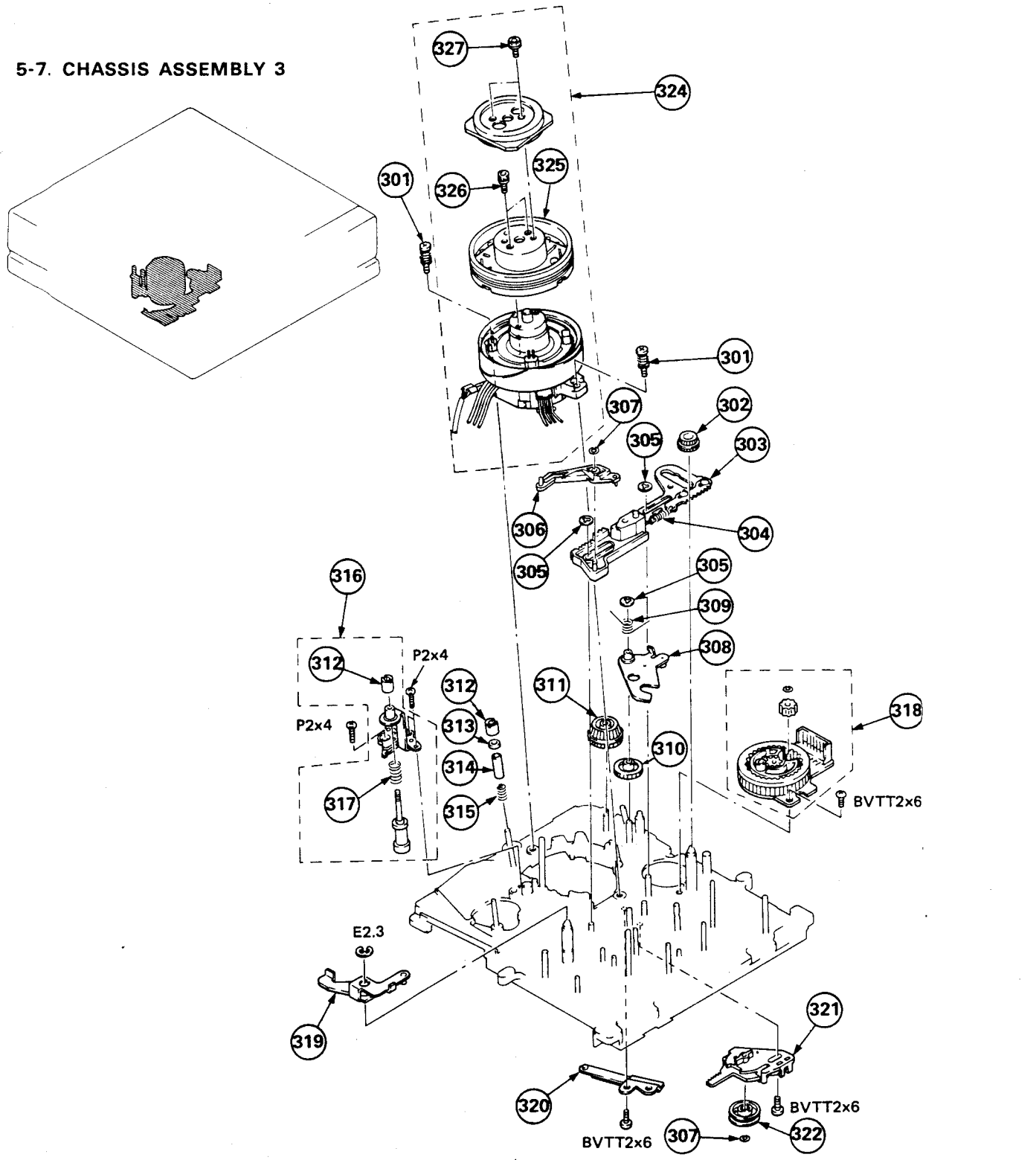
5-6. CHASSIS ASSEMBLY 2



No.	Part No.	Description	Remark
251	X-3686-531-1	BAND ASSY, TENSION REGULATOR	
252	A-7040-059-A	ARM ASSY,TENSION REGULATOR 253-255,281	
253	3-699-519-01	SPRING, TENSION	
254	*X-3686-523-1	PLATE ASSY, TENSION REGULATOR	
255	3-699-609-01	SPRING, COMPRESSION	
256	X-3686-590-1	BRAKE ASSY, REV	
257	*3-686-641-01	ARM, PINCH PRESS	
258	3-315-384-31	WASHER, STOPPER	
259	X-3686-763-1	GEAR (B) ASSY, DRIVING	
260	X-3686-572-2	TABLE ASST, REEL, TAKE-UP	
261	X-3686-571-2	TABLE ASST, REEL, SUPPLY	
262	*1-613-367-11	LD-1 BOARD	
263	X-3686-750-1	DRIVING COMPLETE ASSY	
264	3-669-480-11	+ PTPWH 2	
265	1-554-942-11	SWITCH, PUSH (RECOG R) S901	

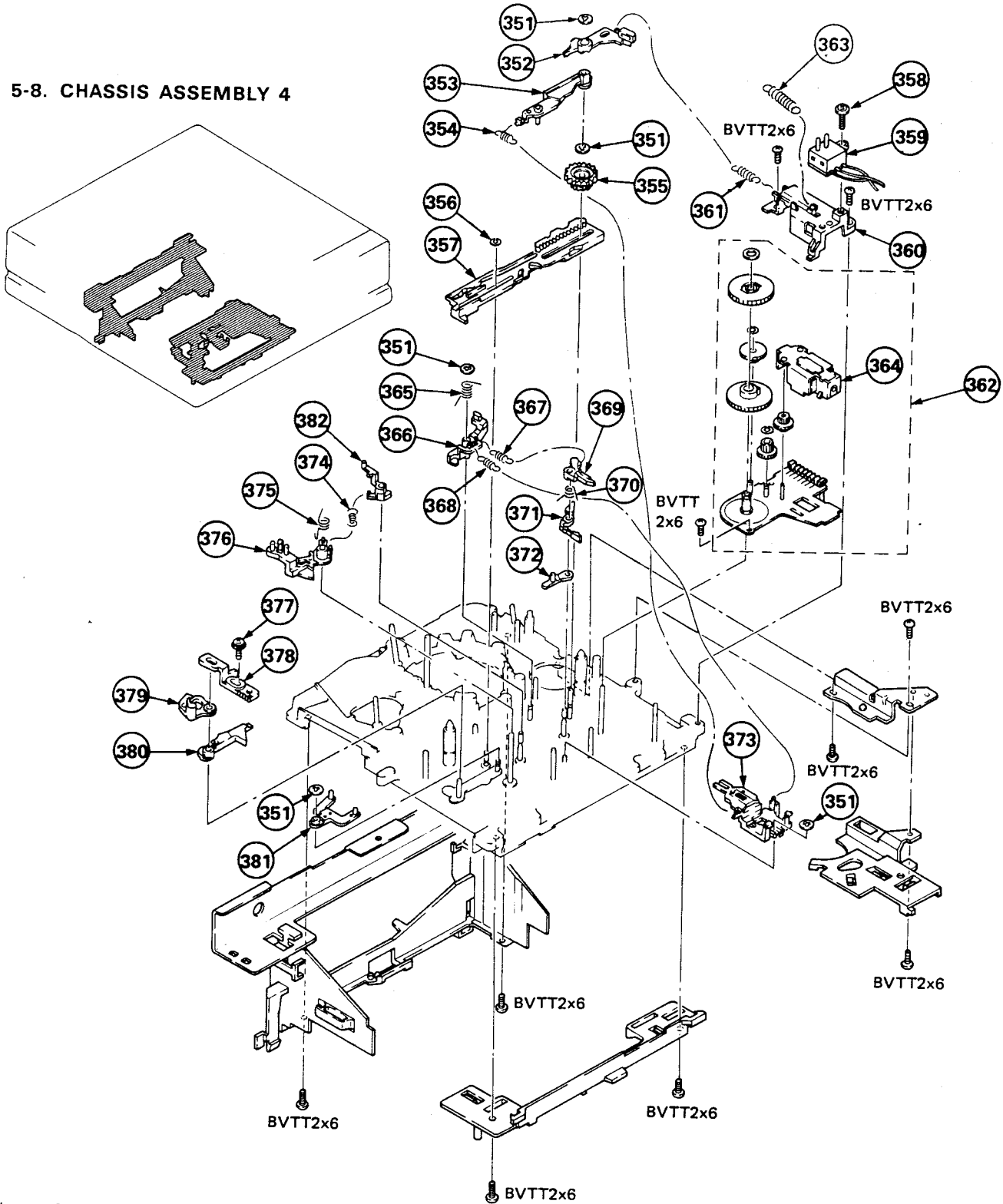
No.	Part No.	Description	Remark
266	*3-686-991-01	STOPPER, REEL TABLE	
267	*3-686-637-01	BRAKE (S), SOFT	
268	3-696-082-01	SPRING, TENSION	
269	*3-686-760-01	GUIDE, BAND	
270	*X-3686-529-1	BASE ASSY, CHANGE GEAR	
271	3-701-436-11	WASHER, 1.6	
272	X-3686-520-1	GEAR ASSY, CHANGE	
273	*3-686-596-01	FLANGE, GEAR	
274	3-686-646-01	BELT, TIMIMG	
275	*X-3686-525-1	HOOK ASSY, SPRING	
276	*3-686-567-01	SLEEVE, PINCH PRESS	
277	*3-686-660-01	ARM, PINCH LIMITER	
278	3-669-465-00	WASHER (1.5), STOPPER	
279	3-686-568-01	SPRING, TORSION	
280	3-686-885-01	SPRING, TENSION	
281	3-697-546-01	SCREW (+-M2x6), SPECIAL	

5-7. CHASSIS ASSEMBLY 3



No.	Part No.	Description	Remark
301	X-3686-569-1	SCREW ASSY, FITTING	
302	3-686-702-01	GEAR, DRIVING, GUIDE, SLANT	
303	*X-3686-548-2	SLIDER SUB ASSY, L	
304	3-686-886-01	SPRING, TENSION	
305	3-669-465-00	WASHER (1.5), STOPPER	
306	*X-3686-518-1	ARM ASSY	
307	3-315-384-31	WASHER, STOPPER	
308	X-3686-579-1	CHANGE ASSY, DRIVE	
309	3-686-540-01	SPRING, TORSION	
310	3-686-535-01	GEAR, NO.8	
311	3-686-539-01	GEAR, NO.9	
312	3-686-724-01	NUT, GUIDE	
313	*3-686-894-01	FLANGE, #3 #4 GUIDE	
314	3-686-912-01	GUIDE, #3 #4	
315	3-669-609-00	SPRING, COMPRESSION	
316	A-7040-053-A	GUIDE BLOCK COMPLETE ASSY, L5	312,317
317	3-686-889-01	SPRING, COMPRESSION	
318	X-3686-549-1	L-SW ASSY	
319	*X-3686-509-1	LEVER ASSY, PINCH PRESS	
320	1-535-535-11	TERMINAL, SHAFT GROUND	
321	X-3686-521-1	BASE ASSY, IDLER	
322	X-3686-522-1	IDLER ASSY	
323	*1-612-780-11	LS-9 BOARD	
324	A-7048-051-A	DRUM ASSY (DGH-04A-R) M901	325,326,327
325	A-7049-080-A	DRUM ASSY, UPPER (DGH-04-R)	
326	3-686-403-01	BOLT (WASHER) (2X5)	
327	3-686-422-01	BOLT (WASHER) (2X2.7)	

5-8. CHASSIS ASSEMBLY 4



No.	Part No.	Description	Remark
351	3-669-465-00	WASHER (1.5), STOPPER	
352	X-3686-777-1	BRAKE ASSY, T.S	
353	*X-3686-528-1	ARM ASSY, B RELEASE	
354	3-686-903-01	SPRING, TENSION	
355	3-686-909-01	GEAR, MODE OUTPUT	
356	3-315-384-31	WASHER, STOPPER	
357	*3-686-657-08	SLIDER, M	
358	3-669-480-11	+ PTPWH 2	
359	1-554-942-11	SWITCH, PUSH (RECOG L) S902	
360	*3-699-556-01	COVER, CONTROL MOTOR	
361	3-699-649-01	SPRING, TENSION	
362	A-7090-029-A	M-SW ASSY	364
363	3-699-650-01	SPRING, TENSION	
364	8-835-110-01	MOTOR, DC (DNR-5301A) (CONTROL) M903	
365	3-686-579-01	SPRING	
366	*3-686-634-01	ARM, RL	

No.	Part No.	Description	Remark
367	3-686-906-01	SPRING, TENSION	
368	3-686-904-01	SPRING, TENSION	
369	X-3686-510-1	BRAKE ASSY, REW	
370	3-686-617-01	SPRING	
371	*3-686-638-01	ARM, RVS	
372	*3-686-580-01	ARM, SET UP	
373	*3-686-656-01	SLIDER, B RELEASE	
374	3-686-905-02	SPRING, TENSION	
375	3-686-603-04	SPRING	
376	*3-686-644-01	ARM, BAND	
377	3-686-528-01	SCREW (2X6), +	
378	*3-686-642-01	PLATE, ADJUSTMENT, BAND	
379	*3-686-755-01	DISK, EJECT	
380	*3-686-643-01	ARM, MODE	
381	*X-3686-530-1	ARM (A) ASSY, SELECTION	
382	3-686-996-01	BRAKE (S), HARD	

5-9. HARDWARE LIST

SCREW

7-621-255-20	SCREW +P 2X4
7-621-255-50	SCREW +P 2X8
7-627-553-48	SCREW,PRECISION +P 2X4
7-685-106-19	SCREW +P 2X10 TYPE2 NON-SLIT
7-685-645-71	SCREW +BVTP 3x6 TYPE2 IT-3
7-685-646-71	SCREW +BVTP 3X8 TYPE2 IT-3
7-685-780-04	SCREW +PTT 2X3 (S)
7-685-783-09	SCREW +PTT 2X6 (S)
7-685-853-01	SCREW +BVTT 2X6 (S)
7-685-880-01	SCREW +BVTT 4X6 (S)

RING

7-624-102-04	STOP RING 1.5, TYPE -E
7-624-105-04	STOP RING 2.3, TYPE -E
7-624-106-04	STOP RING 3.0, TYPE -E

MD-8D

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS
- All resistors are in ohms
- F : nonflammable

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

CAPACITORS
- MF : μF, PF : μμF

COILS
- MMH : mH, UH : μH

Ref.No	Part No.	Description				Remark
	*A-7060-132-A	MD-8D BOARD, COMPLETE **********				
		CAPACITOR				
C001	1-161-974-00	CERAMIC	0.1MF	20%	16V	
C002	1-161-974-00	CERAMIC	0.1MF	20%	16V	
C003	1-161-974-00	CERAMIC	0.1MF	20%	16V	
C004	1-123-380-00	ELECT	1MF	20%	50V	
C005	1-123-382-00	ELECT	3.3MF	20%	50V	
C007	1-123-380-00	ELECT	1MF	20%	50V	
C008	1-123-380-00	ELECT	1MF	20%	50V	
C009	1-123-379-00	ELECT	0.47MF	20%	50V	
C010	1-123-318-00	ELECT	33MF	20%	10V	
C011	1-123-318-00	ELECT	33MF	20%	10V	
C012	1-123-318-00	ELECT	33MF	20%	10V	
C013	1-123-356-00	ELECT	10MF	20%	25V	
C014	1-123-356-00	ELECT	10MF	20%	25V	
C015	1-123-356-00	ELECT	10MF	20%	25V	
C016	1-123-356-00	ELECT	10MF	20%	25V	
C017	1-123-608-00	ELECT	0.22MF	20%	50V	
C018	1-123-356-00	ELECT	10MF	20%	25V	
C019	1-124-271-00	ELECT	1MF	20%	50V	
C101	1-123-306-00	ELECT	47MF	20%	10V	
C102	1-162-306-31	CERAMIC	0.01MF	20%	16V	
		CONNECTOR				
CN001	*1-564-003-00	PIN, CONNECTOR 4P				
CN002	*1-564-003-00	PIN, CONNECTOR 4P				
CN003	*1-564-003-00	PIN, CONNECTOR 4P				
CN008	*1-564-010-11	PIN, CONNECTOR 11P				
CN009	*1-564-001-11	PIN, CONNECTOR 2P				
CN013	*1-564-002-00	PIN, CONNECTOR 3P				
CN014	*1-564-002-00	PIN, CONNECTOR 3P				
CN015	*1-564-001-11	PIN, CONNECTOR 2P				
CN019	*1-564-001-11	PIN, CONNECTOR 2P				
CN020	*1-564-004-00	PIN, CONNECTOR 5P				
CN025	*1-564-001-11	PIN, CONNECTOR 2P				
CN050	*1-564-005-00	PIN, CONNECTOR 6P				
		DIODE				
D001	8-719-200-02	DIODE 10E-2				
		IC				
IC001	8-752-013-60	IC CX20136				
IC002	8-759-202-69	IC CX20144				
IC003	8-759-102-97	IC CX20145				
IC004	8-759-135-80	IC UPC358C				
IC101	8-759-240-69	IC TC4069UBP				
		IC LINK				
PS001⚠	1-532-675-11	LINK, IC (ICP-F38)				
PS002⚠	1-532-675-11	LINK, IC (ICP-F38)				
PS003⚠	1-532-675-11	LINK, IC (ICP-F38)				

Ref.No	Part No.	Description			Remark
		TRANSISTOR			
Q001	8-729-902-11	TRANSISTOR 2SC2021			
Q002	8-729-201-78	TRANSISTOR 2SD1406			
Q003	8-729-902-11	TRANSISTOR 2SC2021			
Q004	8-729-201-78	TRANSISTOR 2SD1406			
Q006	8-729-900-65	TRANSISTOR DTA144ES			
Q100	8-729-900-33	TRANSISTOR DTC144EF			
Q101	8-729-374-02	TRANSISTOR 2SB740			
Q103	8-729-117-54	TRANSISTOR 2SA1175			
Q104	8-729-117-54	TRANSISTOR 2SA1175			
Q105	8-729-900-33	TRANSISTOR DTC144EF			
Q106	8-729-900-33	TRANSISTOR DTC144EF			
Q107	8-729-900-33	TRANSISTOR DTC144EF			
Q108	8-729-117-54	TRANSISTOR 2SA1175			
		RESISTOR			
R001	1-247-845-00	CARBON	3.9K	5% 1/6W	
R002	1-249-421-11	CARBON	2.2K	5% 1/6W	
R004	1-247-895-00	CARBON	470K	5% 1/6W	
R006	1-247-831-00	CARBON	1K	5% 1/6W	
R007	1-249-447-11	CARBON	1	5% 1/4W	
R008	1-247-851-00	CARBON	6.8K	5% 1/6W	
R010	1-247-883-00	CARBON	150K	5% 1/6W	
R011	1-247-847-00	CARBON	4.7K	5% 1/6W	
R013	1-247-863-00	CARBON	22K	5% 1/6W	
R015	1-249-429-11	CARBON	10K	5% 1/6W	
R016	1-247-831-00	CARBON	1K	5% 1/6W	
R017	1-249-429-11	CARBON	10K	5% 1/6W	
R018	1-247-771-00	CARBON	3.3	5% 1/6W	
R019	1-247-771-00	CARBON	3.3	5% 1/6W	
R020	1-247-771-00	CARBON	3.3	5% 1/6W	
R022	1-247-869-00	CARBON	39K	5% 1/6W	
R023	1-249-447-11	CARBON	1	5% 1/4W	
R024	1-247-863-00	CARBON	22K	5% 1/6W	
R025	1-247-863-00	CARBON	22K	5% 1/6W	
R028	1-247-815-00	CARBON	220	5% 1/6W	
R030	1-249-429-11	CARBON	10K	5% 1/6W	
R100	1-249-429-11	CARBON	10K	5% 1/6W	
R101	1-249-429-11	CARBON	10K	5% 1/6W	
R102	1-249-429-11	CARBON	10K	5% 1/6W	
R103	1-247-862-00	CARBON	20K	5% 1/6W	
R104	1-247-833-00	CARBON	1.2K	5% 1/6W	
R105	1-249-429-11	CARBON	10K	5% 1/6W	
R106	1-249-429-11	CARBON	10K	5% 1/6W	
R107	1-249-447-11	CARBON	1	5% 1/4W	
R108	1-247-862-00	CARBON	20K	5% 1/6W	
R109	1-247-862-00	CARBON	20K	5% 1/6W	
R110	1-247-862-00	CARBON	20K	5% 1/6W	
R111	1-249-437-11	CARBON	47K	5% 1/6W	
R112	1-247-863-00	CARBON	22K	5% 1/6W	
R113	1-249-429-11	CARBON	10K	5% 1/6W	
R114	1-249-429-11	CARBON	10K	5% 1/6W	

Ref.No	Part No.	Description				Remark
R115	1-249-429-11	CARBON	10K	5%	1/6W	
R116	1-247-862-00	CARBON	20K	5%	1/6W	
R117	1-249-429-11	CARBON	10K	5%	1/6W	
R118	1-249-429-11	CARBON	10K	5%	1/6W	
R119	1-249-437-11	CARBON	47K	5%	1/6W	
R120	1-247-129-00	CARBON	820	5%	1/4W	
R121	1-247-862-00	CARBON	20K	5%	1/6W	
R122	1-247-862-00	CARBON	20K	5%	1/6W	
R123	1-247-862-00	CARBON	20K	5%	1/6W	
R124	1-247-809-00	CARBON	120	5%	1/6W	
R125	1-249-437-11	CARBON	47K	5%	1/6W	
R126	1-247-700-11	CARBON	100	5%	1/4W	
R130	1-247-857-00	CARBON	12K	5%	1/6W	
R131	1-247-857-00	CARBON	12K	5%	1/6W	
R134	1-247-867-00	CARBON	33K	5%	1/6W	
R135	1-247-863-00	CARBON	22K	5%	1/6W	
R136	1-247-829-00	CARBON	820	5%	1/6W	

TERMISTOR

THP001⚠	1-806-886-11	THERMISTOR (POSITIVE) 10	

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*A-7060-154-A PC-14B BOARD, COMPLETE
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CAPACITOR

C211	1-123-330-00	ELECT	22MF	20%	16V
C212	1-123-306-00	ELECT	47MF	20%	6.3V
C213	1-123-356-00	ELECT	10MF	20%	16V
C214	1-161-013-00	CERAMIC	0.01MF	10%	25V
C215	1-123-369-00	ELECT	4.7MF	20%	25V
C216	1-123-306-00	ELECT	47MF	20%	6.3V
C217	1-123-607-00	ELECT	0.1MF	20%	50V
C218	1-123-356-00	ELECT	10MF	20%	16V
C219	1-123-306-00	ELECT	47MF	20%	6.3V
C220	1-123-356-00	ELECT	10MF	20%	16V
C221	1-123-607-00	ELECT	0.1MF	20%	50V
C222	1-123-356-00	ELECT	10MF	20%	16V
C223	1-123-330-00	ELECT	22MF	20%	16V
C225	1-123-369-00	ELECT	4.7MF	20%	25V
C251	1-161-013-00	CERAMIC	0.01MF	10%	25V
C254	1-128-380-00	ELECT	1MF	20%	50V
C301	1-124-284-00	ELECT	10MF	20%	16V
C303	1-123-330-00	ELECT	22MF	20%	10V
C304	1-123-307-00	ELECT	100MF	20%	6.3V
C305	1-123-330-00	ELECT	22MF	20%	10V
C307	1-136-160-00	MYLAR	0.039MF	5%	50V
C308	1-102-978-00	CERAMIC	220PF	5%	50V
C309	1-102-942-00	CERAMIC	5PF	1PF	50V
C310	1-130-479-00	MYLAR	0.0047MF	5%	50V
C312	1-123-306-00	ELECT	47MF	20%	6.3V
C313	1-123-318-00	ELECT	33MF	20%	10V

Ref.No	Part No.	Description				Remark
C314	1-130-482-00	MYLAR	0.0082MF	5%	50V	
C315	1-102-116-00	CERAMIC	680PF	10%	50V	
C316	1-123-380-00	ELECT	1MF	20%	50V	
C317	1-131-383-00	TANTALUM	10MF	10%	6.3V	
C318	1-131-343-00	TANTALUM	0.22MF	10%	35V	
C320	1-130-474-00	MYLAR	0.0018MF	5%	50V	
C322	1-123-330-00	ELECT	22MF	20%	10V	
C323	1-123-356-00	ELECT	10MF	20%	16V	
C324	1-123-382-00	ELECT	3.3MF	20%	50V	
C325	1-123-380-00	ELECT	1MF	20%	50V	
C326	1-102-959-00	CERAMIC	22PF	5%	50V	
C327	1-130-495-00	MYLAR	0.1MF	5%	50V	
C328	1-123-369-00	ELECT	4.7MF	20%	25V	
C329	1-123-356-00	ELECT	10MF	20%	16V	
C330	1-130-471-00	MYLAR	0.001MF	5%	50V	
C331	1-123-307-00	ELECT	100MF	20%	6.3V	
C333	1-130-471-00	MYLAR	0.001MF	5%	50V	
C334	1-130-495-00	MYLAR	0.1MF	5%	50V	
C350	1-123-330-00	ELECT	22MF	20%	10V	
C360	1-130-486-00	MYLAR	0.018MF	5%	50V	
C370	1-161-025-00	CERAMIC	0.1MF	10%	25V	
C371	1-123-356-00	ELECT	10MF	20%	16V	
C401	1-124-284-00	ELECT	10MF	20%	16V	
C403	1-123-330-00	ELECT	22MF	20%	10V	
C404	1-123-307-00	ELECT	100MF	20%	6.3V	
C405	1-123-330-00	ELECT	22MF	20%	10V	
C407	1-136-160-00	MYLAR	0.039MF	5%	50V	
C408	1-102-978-00	CERAMIC	220PF	5%	50V	
C409	1-102-942-00	CERAMIC	5PF	1PF	50V	
C410	1-130-479-00	MYLAR	0.0047MF	5%	50V	
C412	1-123-306-00	ELECT	47MF	20%	6.3V	
C413	1-123-318-00	ELECT	33MF	20%	10V	
C414	1-130-482-00	MYLAR	0.0082MF	5%	50V	
C415	1-102-116-00	CERAMIC	680PF	10%	50V	
C416	1-123-380-00	ELECT	1MF	20%	50V	
C417	1-131-383-00	TANTALUM	10MF	10%	6.3V	
C418	1-131-343-00	TANTALUM	0.22MF	10%	35V	
C420	1-130-474-00	MYLAR	0.0018MF	5%	50V	
C422	1-123-330-00	ELECT	22MF	20%	10V	
C423	1-123-356-00	ELECT	10MF	20%	16V	
C424	1-123-382-00	ELECT	3.3MF	20%	50V	
C425	1-123-380-00	ELECT	1MF	20%	50V	
C426	1-102-959-00	CERAMIC	22PF	5%	50V	
C427	1-130-495-00	MYLAR	0.1MF	5%	50V	
C428	1-123-369-00	ELECT	4.7MF	20%	25V	
C429	1-123-356-00	ELECT	10MF	20%	16V	
C430	1-130-471-00	MYLAR	0.001MF	5%	50V	
C431	1-123-307-00	ELECT	100MF	20%	6.3V	
C433	1-130-471-00	MYLAR	0.001MF	5%	50V	
C434	1-130-495-00	MYLAR	0.1MF	5%	50V	
C450	1-123-330-00	ELECT	22MF	20%	10V	
C460	1-130-486-00	MYLAR	0.018MF	5%	50V	
C470	1-161-025-00	CERAMIC	0.1MF	10%	25V	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

PC-14B

Ref.No	Part No.	Description			Remark
C471	1-123-356-00	ELECT	10MF	20%	16V
C501	1-123-307-00	ELECT	100MF	20%	6.3V
C502	1-123-330-00	ELECT	22MF	20%	16V
C503	1-123-356-00	ELECT	10MF	20%	16V
C504	1-123-380-00	ELECT	1MF	20%	50V
C505	1-123-356-00	ELECT	10MF	20%	16V
C506	1-130-482-00	MYLAR	0.0082MF	5%	50V
C507	1-102-116-00	CERAMIC	680PF	10%	50V
C508	1-136-160-00	MYLAR	0.039MF	5%	50V
C509	1-102-978-00	CERAMIC	220PF	5%	50V
C510	1-102-942-00	CERAMIC	5PF	1PF	50V
C511	1-130-479-00	MYLAR	0.0047MF	5%	50V
C512	1-123-356-00	ELECT	10MF	20%	16V
C513	1-102-824-00	CERAMIC	470PF	5%	50V
C514	1-123-308-00	ELECT	220MF	20%	6.3V
C516	1-123-307-00	ELECT	100MF	20%	6.3V
C517	1-123-381-00	ELECT	2.2MF	20%	50V
C518	1-161-013-00	CERAMIC	0.01MF	10%	25V
C519	1-130-475-00	MYLAR	0.0022MF	5%	50V
C520	1-130-478-00	MYLAR	0.0039MF	5%	50V
C521	1-102-978-00	CERAMIC	220PF	5%	50V
C522	1-130-473-00	MYLAR	0.0015MF	5%	50V
C523	1-123-379-00	ELECT	0.47MF	20%	50V
C524	1-102-116-00	CERAMIC	680PF	10%	50V
C525	1-161-013-00	CERAMIC	0.01MF	10%	25V
C527	1-161-013-00	CERAMIC	0.01MF	10%	25V
C528	1-130-475-00	MYLAR	0.0022MF	5%	50V
C529	1-101-880-00	CERAMIC	47PF	5%	50V
C530	1-123-380-00	ELECT	1MF	20%	50V
C531	1-123-307-00	ELECT	100MF	20%	6.3V
C532	1-161-013-00	CERAMIC	0.01MF	10%	25V
C533	1-161-013-00	CERAMIC	0.01MF	10%	25V
C581	1-161-013-00	CERAMIC	0.01MF	10%	25V
C582	1-161-013-00	CERAMIC	0.01MF	10%	25V
C590	1-123-356-00	ELECT	10MF	20%	16V
C591	1-123-356-00	ELECT	10MF	20%	16V
C592	1-123-356-00	ELECT	10MF	20%	16V
C601	1-123-306-00	ELECT	47MF	20%	10V
C602	1-123-306-00	ELECT	47MF	20%	10V
C603	1-123-306-00	ELECT	47MF	20%	6.3V
C604	1-123-330-00	ELECT	22MF	20%	16V
C605	1-123-330-00	ELECT	22MF	20%	16V
C606	1-123-306-00	ELECT	47MF	20%	10V
C607	1-123-306-00	ELECT	47MF	20%	10V
C608	1-123-307-00	ELECT	100MF	20%	6.3V
C609	1-123-306-00	ELECT	47MF	20%	6.3V
C610	1-123-306-00	ELECT	47MF	20%	6.3V
C611	1-161-013-00	CERAMIC	0.01MF	10%	25V
C612	1-123-356-00	ELECT	10MF	20%	16V
C613	1-103-709-00	POLYSTYRENE	220PF	5%	50V
C614	1-123-307-00	ELECT	100MF	20%	6.3V
C616	1-131-408-00	TANTALUM	1MF	10%	25V
C617	1-131-408-00	TANTALUM	1MF	10%	25V

Ref.No	Part No.	Description			Remark
C619	1-123-307-00	ELECT	100MF	20%	6.3V
C620	1-123-307-00	ELECT	100MF	20%	6.3V
C621	1-161-039-00	CERAMIC	0.001MF	10%	25V
C622	1-161-039-00	CERAMIC	0.001MF	10%	25V
C623	1-123-307-00	ELECT	100MF	20%	6.3V
C624	1-123-306-00	ELECT	47MF	20%	10V
C625	1-123-306-00	ELECT	47MF	20%	10V
C626	1-123-306-00	ELECT	47MF	20%	10V
C628	1-123-307-00	ELECT	100MF	20%	6.3V
C629	1-123-306-00	ELECT	47MF	20%	6.3V
C633	1-123-307-00	ELECT	100MF	20%	6.3V
C650	1-161-013-00	CERAMIC	0.01MF	10%	25V
C660	1-123-333-00	ELECT	100MF	20%	16V
C661	1-123-333-00	ELECT	100MF	20%	16V
C680	1-123-307-00	ELECT	100MF	20%	6.3V
C851	1-161-013-00	CERAMIC	0.01MF	10%	25V
C852	1-161-013-00	CERAMIC	0.01MF	10%	25V
C853	1-123-330-00	ELECT	22MF	20%	16V
C854	1-161-013-00	CERAMIC	0.01MF	10%	25V
C855	1-161-013-00	CERAMIC	0.01MF	10%	25V
C856	1-161-057-00	CERAMIC	0.033MF	10%	25V
C857	1-161-057-00	CERAMIC	0.033MF	10%	25V
C858	1-123-380-00	ELECT	1MF	20%	50V
C859	1-123-330-00	ELECT	22MF	20%	16V
C860	1-161-013-00	CERAMIC	0.01MF	10%	25V
C861	1-161-013-00	CERAMIC	0.01MF	10%	25V
C862	1-161-057-00	CERAMIC	0.033MF	10%	25V
C863	1-161-057-00	CERAMIC	0.033MF	10%	25V
C864	1-123-380-00	ELECT	1MF	20%	50V

CONNECTOR

CN109	*1-560-894-00	PIN, CONNECTOR 6P
CN110	*1-560-897-00	PIN, CONNECTOR 9P
CN601	*1-560-894-00	PIN, CONNECTOR 6P
CN602	*1-560-892-00	PIN, CONNECTOR 4P
CN603	*1-564-030-00	PIN, CONNECTOR 5P
CN604	*1-560-896-00	PIN, CONNECTOR 8P
CN605	*1-560-891-00	PIN, CONNECTOR 3P
CN606	*1-560-893-00	PIN, CONNECTOR 5P
CN607	*1-560-891-00	PIN, CONNECTOR 3P
CN608	*1-560-894-00	PIN, CONNECTOR 6P
CN609	*1-560-891-00	PIN, CONNECTOR 3P
CN611	*1-560-895-00	PIN, CONNECTOR 7P
CN701	*1-560-896-00	PIN, CONNECTOR 8P
CN851	*1-564-029-00	PIN, CONNECTOR 4P
CN852	*1-560-891-00	PIN, CONNECTOR 3P

CMPOSITION CIRCUIT BLOCK

CP001	1-232-809-11	COMPOSITION CIRCUIT BLOCK
CP003	1-232-803-11	COMPOSITION CIRCUIT BLOCK
CP005	1-232-874-11	COMPOSITION CIRCUIT BLOCK
CP006	1-232-801-11	COMPOSITION CIRCUIT BLOCK
CP007	1-232-876-11	COMPOSITION CIRCUIT BLOCK

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
CP008	1-232-873-11	COMPOSITION CIRCUIT BLOCK	
CP009	1-232-800-11	COMPOSITION CIRCUIT BLOCK	
CP010	1-232-864-11	COMPOSITION CIRCUIT BLOCK	
CP011	1-232-865-11	COMPOSITION CIRCUIT BLOCK	
CP013	1-232-866-11	COMPOSITION CIRCUIT BLOCK	
CP014	1-232-860-11	COMPOSITION CIRCUIT BLOCK	
CP015	1-232-867-11	COMPOSITION CIRCUIT BLOCK	
CP018	1-232-808-11	COMPOSITION CIRCUIT BLOCK	
CP019	1-232-807-11	COMPOSITION CIRCUIT BLOCK	
CP020	1-232-806-11	COMPOSITION CIRCUIT BLOCK	
CP021	1-232-868-11	COMPOSITION CIRCUIT BLOCK	
CP022	1-232-875-11	COMPOSITION CIRCUIT BLOCK	
CP023	1-232-805-12	COMPOSITION CIRCUIT BLOCK	
CP024	1-232-796-12	COMPOSITION CIRCUIT BLOCK	
CP100	1-232-945-11	COMPOSITION CIRCUIT BLOCK	
CP601	1-232-883-11	COMPOSITION CIRCUIT BLOCK	
CP602	1-232-870-11	COMPOSITION CIRCUIT BLOCK	
CP603	1-232-811-11	COMPOSITION CIRCUIT BLOCK	
CP604	1-232-810-11	COMPOSITION CIRCUIT BLOCK	
CP851	1-232-908-11	COMPOSITION CIRCUIT BLOCK	
CP852	1-232-797-11	COMPOSITION CIRCUIT BLOCK	
CP853	1-232-798-11	COMPOSITION CIRCUIT BLOCK	
CP854	1-232-797-11	COMPOSITION CIRCUIT BLOCK	
		DIODE	
D211	8-719-911-19	DIODE 1SS119	
D212	8-719-000-12	DIODE MC931	
D214	8-719-000-12	DIODE MC931	
D251	8-719-911-19	DIODE 1SS119	
D301	8-719-118-07	DIODE RD18E-B	
D308	8-719-127-07	DIODE RD2.7E-B	
D401	8-719-118-07	DIODE RD18E-B	
D570	8-719-162-07	DIODE RD6.2E-B	
D650	8-719-000-04	DIODE MC911	
D652	8-719-000-06	DIODE MC921	
		FILTER	
FL301	1-235-565-11	FILTER, LOW PASS	
FL401	1-235-565-11	FILTER, LOW PASS	
FL501	1-235-484-11	FILTER, BAND PASS (1.5MHZ)	
FL851	1-235-517-21	FILTER, BAND PASS (230KHZ)	
FL852	1-235-517-21	FILTER, BAND PASS (230KHZ)	
		IC	
IC221	8-759-700-40	IC NJM4560S	
IC501	8-752-013-70	IC CX20137	
IC502	8-759-700-40	IC NJM4560S	
IC601	8-752-014-80	IC CX20148	
IC603	8-759-340-53	IC HD14053BP	
IC604	8-752-306-00	IC CX23060	
IC605	8-759-700-39	IC NJM4562S-D	
IC606	8-759-700-40	IC NJM4560S	
IC607	8-759-700-40	IC NJM4560S	
IC608	8-759-240-52	IC TC4052BP	
IC609	8-759-240-52	IC TC4052BP	
IC610	8-759-700-40	IC NJM4560S	
IC611	8-759-340-52	IC HD14052BP	
IC612	8-759-240-53	IC TC4053BP	
IC613	8-759-700-39	IC NJM4562S-D	
IC614	8-759-340-52	IC HD14052BP	
IC616	8-759-700-08	IC NJM4558S	
IC617	8-759-961-38	IC BA6138	
IC618	8-759-914-44	IC TL431CLPB	
IC620	8-759-700-40	IC NJM4560S	
IC621	8-759-700-40	IC NJM4560S	
		JACK	
J601	1-562-838-21	JACK, PIN 4P (AUDIO OUT)	
		COIL	
L501	1-408-619-41	MICRO INDUCTOR 220UH	
L601	1-408-421-00	MICRO INDUCTOR 100UH	
		TRANSISTOR	
Q214	8-729-178-54	TRANSISTOR 2SC2785	
Q216	8-729-178-54	TRANSISTOR 2SC2785	
Q290	8-729-679-82	TRANSISTOR 2SA798	
Q291	8-729-699-51	TRANSISTOR 2SA995	
Q301	8-729-606-33	TRANSISTOR 2SC2603	
Q302	8-729-245-83	TRANSISTOR 2SC2458	
Q303	8-729-245-83	TRANSISTOR 2SC2458	
Q401	8-729-606-33	TRANSISTOR 2SC2603	
Q402	8-729-245-83	TRANSISTOR 2SC2458	
Q403	8-729-245-83	TRANSISTOR 2SC2458	
Q501	8-729-245-83	TRANSISTOR 2SC2458	
Q503	8-729-900-89	TRANSISTOR DTC144ES	
Q504	8-729-900-89	TRANSISTOR DTC144ES	
Q506	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q510	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q516	8-729-178-54	TRANSISTOR 2SC2785	
Q602	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q603	8-729-178-54	TRANSISTOR 2SC2785	
Q650	8-729-178-54	TRANSISTOR 2SC2785	
Q651	8-729-178-54	TRANSISTOR 2SC2785	
Q652	8-729-900-89	TRANSISTOR DTC144ES	
Q653	8-729-178-54	TRANSISTOR 2SC2785	
Q851	8-729-178-54	TRANSISTOR 2SC2785	
Q852	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q853	8-729-178-54	TRANSISTOR 2SC2785	
Q854	8-729-178-54	TRANSISTOR 2SC2785	
Q855	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q856	8-729-178-54	TRANSISTOR 2SC2785	
		RESISTOR	
R216	1-249-429-11	CARBON 10K 5% 1/6W	
R227	1-249-429-11	CARBON 10K 5% 1/6W	

When indicating parts by reference number, please include the board name.

PC-14B

Ref.No	Part No.	Description				Remark
R251	1-249-419-11	CARBON	1.5K	5%	1/6W	
R252	1-249-419-11	CARBON	1.5K	5%	1/6W	
R254	1-247-841-00	CARBON	2.7K	5%	1/6W	
R255	1-247-841-00	CARBON	2.7K	5%	1/6W	
R301	1-247-817-00	CARBON	270	5%	1/6W	
R309	1-249-429-11	CARBON	10K	5%	1/6W	
R313	1-249-429-11	CARBON	10K	5%	1/6W	
R314	1-247-867-00	CARBON	33K	5%	1/6W	
R322	1-247-841-00	CARBON	2.7K	5%	1/6W	
R323	1-249-429-11	CARBON	10K	5%	1/6W	
R327	1-247-843-00	CARBON	3.3K	5%	1/6W	
R328	1-247-843-00	CARBON	3.3K	5%	1/6W	
R329	1-247-847-00	CARBON	4.7K	5%	1/6W	
R330	1-247-825-00	CARBON	560	5%	1/6W	
R332	1-249-421-11	CARBON	2.2K	5%	1/6W	
R333	1-249-421-11	CARBON	2.2K	5%	1/6W	
R334	1-247-854-00	CARBON	9.1K	5%	1/6W	
R335	1-247-877-00	CARBON	82K	5%	1/6W	
R338	1-247-837-00	CARBON	1.8K	5%	1/6W	
R339	1-247-891-00	CARBON	330K	5%	1/6W	
R340	1-247-841-00	CARBON	2.7K	5%	1/6W	
R345	1-247-815-00	CARBON	220	5%	1/6W	
R346	1-247-833-00	CARBON	1.2K	5%	1/6W	
R348	1-247-837-00	CARBON	1.8K	5%	1/6W	
R360	1-249-437-11	CARBON	47K	5%	1/6W	
R363	1-247-879-00	CARBON	100K	5%	1/6W	
R364	1-247-887-00	CARBON	220K	5%	1/6W	
R365	1-247-857-00	CARBON	12K	5%	1/6W	
R366	1-247-851-00	CARBON	6.8K	5%	1/6W	
R370	1-247-883-00	CARBON	150K	5%	1/6W	
R401	1-247-817-00	CARBON	270	5%	1/6W	
R409	1-249-429-11	CARBON	10K	5%	1/6W	
R413	1-249-429-11	CARBON	10K	5%	1/6W	
R414	1-247-867-00	CARBON	33K	5%	1/6W	
R423	1-249-429-11	CARBON	10K	5%	1/6W	
R427	1-247-843-00	CARBON	3.3K	5%	1/6W	
R428	1-247-843-00	CARBON	3.3K	5%	1/6W	
R429	1-247-847-00	CARBON	4.7K	5%	1/6W	
R430	1-247-825-00	CARBON	560	5%	1/6W	
R432	1-249-421-11	CARBON	2.2K	5%	1/6W	
R433	1-249-421-11	CARBON	2.2K	5%	1/6W	
R434	1-247-854-00	CARBON	9.1K	5%	1/6W	
R435	1-247-877-00	CARBON	82K	5%	1/6W	
R438	1-247-837-00	CARBON	1.8K	5%	1/6W	
R439	1-247-891-00	CARBON	330K	5%	1/6W	
R440	1-247-841-00	CARBON	2.7K	5%	1/6W	
R445	1-247-815-00	CARBON	220	5%	1/6W	
R446	1-247-833-00	CARBON	1.2K	5%	1/6W	
R448	1-247-837-00	CARBON	1.8K	5%	1/6W	
R460	1-249-437-11	CARBON	47K	5%	1/6W	
R463	1-247-879-00	CARBON	100K	5%	1/6W	
R464	1-247-887-00	CARBON	220K	5%	1/6W	
R465	1-247-857-00	CARBON	12K	5%	1/6W	

Ref.No	Part No.	Description				Remark
R466	1-247-851-00	CARBON	6.8K	5%	1/6W	
R470	1-247-883-00	CARBON	150K	5%	1/6W	
R501	1-247-851-00	CARBON	6.8K	5%	1/6W	
R502	1-249-429-11	CARBON	10K	5%	1/6W	
R503	1-247-843-00	CARBON	3.3K	5%	1/6W	
R504	1-247-843-00	CARBON	3.3K	5%	1/6W	
R505	1-247-841-00	CARBON	2.7K	5%	1/6W	
R512	1-247-829-00	CARBON	820	5%	1/6W	
R513	1-247-829-00	CARBON	820	5%	1/6W	
R514	1-247-869-00	CARBON	39K	5%	1/6W	
R515	1-247-831-00	CARBON	1K	5%	1/6W	
R517	1-247-847-00	CARBON	4.7K	5%	1/6W	
R518	1-247-889-00	CARBON	270K	5%	1/6W	
R519	1-247-903-00	CARBON	1M	5%	1/6W	
R520	1-247-847-00	CARBON	4.7K	5%	1/6W	
R521	1-247-847-00	CARBON	4.7K	5%	1/6W	
R522	1-247-847-00	CARBON	4.7K	5%	1/6W	
R523	1-247-862-00	CARBON	20K	5%	1/6W	
R524	1-249-434-11	CARBON	27K	5%	1/6W	
R525	1-247-861-00	CARBON	18K	5%	1/6W	
R526	1-247-863-00	CARBON	22K	5%	1/6W	
R527	1-247-861-00	CARBON	18K	5%	1/6W	
R528	1-247-831-00	CARBON	1K	5%	1/6W	
R529	1-249-437-11	CARBON	47K	5%	1/6W	
R530	1-247-831-00	CARBON	1K	5%	1/6W	
R531	1-247-823-00	CARBON	470	5%	1/6W	
R533	1-247-831-00	CARBON	1K	5%	1/6W	
R535	1-247-845-00	CARBON	3.9K	5%	1/6W	
R536	1-247-831-00	CARBON	1K	5%	1/6W	
R537	1-247-867-00	CARBON	33K	5%	1/6W	
R538	1-247-875-00	CARBON	68K	5%	1/6W	
R539	1-247-831-00	CARBON	1K	5%	1/6W	
R540	1-247-861-00	CARBON	18K	5%	1/6W	
R552	1-247-851-00	CARBON	6.8K	5%	1/6W	
R556	1-247-837-00	CARBON	1.8K	5%	1/6W	
R557	1-247-845-00	CARBON	3.9K	5%	1/6W	
R563	1-247-847-00	CARBON	4.7K	5%	1/6W	
R592	1-247-867-00	CARBON	33K	5%	1/6W	
R593	1-247-867-00	CARBON	33K	5%	1/6W	
R606	1-249-429-11	CARBON	10K	5%	1/6W	
R607	1-215-438-00	METAL	5.1K	1%	1/6W	
R612	1-247-847-00	CARBON	4.7K	5%	1/6W	
R623	1-247-804-00	CARBON	75	5%	1/6W	
R627	1-247-811-00	CARBON	150	5%	1/6W	
R628	1-215-423-00	METAL	1.2K	1%	1/6W	
R629	1-215-431-00	METAL	2.7K	1%	1/6W	
R630	1-247-821-00	CARBON	390	5%	1/6W	
R631	1-247-831-00	CARBON	1K	5%	1/6W	
R633	1-215-485-00	METAL	470K	1%	1/6W	
R634	1-247-901-00	CARBON	820K	5%	1/6W	
R639	1-247-807-00	CARBON	100	5%	1/6W	
R640	1-247-807-00	CARBON	100	5%	1/6W	
R641	1-249-429-11	CARBON	10K	5%	1/6W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R650	1-249-429-11	CARBON	10K	5%	1/6W	
R654	1-249-437-11	CARBON	47K	5%	1/6W	
R658	1-247-830-00	CARBON	910	5%	1/6W	
R659	1-247-821-00	CARBON	390	5%	1/6W	
R660	1-247-821-00	CARBON	390	5%	1/6W	
R851	1-247-831-00	CARBON	1K	5%	1/6W	
R852	1-247-829-00	CARBON	820	5%	1/6W	
R853	1-247-829-00	CARBON	820	5%	1/6W	

VARIABLE RESISTOR

RV301	1-228-995-00	RES, ADJ, CARBON	22K
RV304	1-228-991-00	RES, ADJ, CARBON	2.2K
RV401	1-228-995-00	RES, ADJ, CARBON	22K
RV404	1-228-991-00	RES, ADJ, CARBON	2.2K
RV501	1-228-995-00	RES, ADJ, CARBON	22K
RV502	1-228-994-00	RES, ADJ, CARBON	10K
RV503	1-228-993-00	RES, ADJ, CARBON	4.7K
RV603	1-228-999-00	RES, ADJ, CARBON	470K

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*A-7060-610-A VI-9AG BOARD, COMPLETE
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CAPACITOR

C001	1-161-025-00	CERAMIC	0.1MF	10%	25V
C002	1-102-824-00	CERAMIC	470PF	5%	50V
C003	1-101-006-00	CERAMIC	0.047MF		50V
C004	1-161-025-00	CERAMIC	0.1MF	10%	25V
C006	1-102-074-00	CERAMIC	0.001MF	10%	50V
C007	1-101-006-00	CERAMIC	0.047MF		50V
C008	1-123-356-00	ELECT	10MF	20%	16V
C009	1-123-356-00	ELECT	10MF	20%	16V
C010	1-123-356-00	ELECT	10MF	20%	16V
C011	1-101-006-00	CERAMIC	0.047MF		50V
C012	1-101-006-00	CERAMIC	0.047MF		50V
C013	1-123-380-00	ELECT	1MF	20%	50V
C014	1-123-309-00	ELECT	330MF	20%	6.3V
C015	1-123-330-00	ELECT	22MF	20%	16V
C016	1-123-369-00	ELECT	4.7MF	20%	25V
C017	1-123-369-00	ELECT	4.7MF	20%	25V
C019	1-123-356-00	ELECT	10MF	20%	16V
C020	1-101-006-00	CERAMIC	0.047MF		50V
C021	1-101-888-00	CERAMIC	68PF	5%	50V
C022	1-101-888-00	CERAMIC	68PF	5%	50V
C023	1-102-976-00	CERAMIC	180PF	5%	50V
C024	1-101-004-00	CERAMIC	0.01MF		50V

Ref.No	Part No.	Description				Remark
C025	1-101-006-00	CERAMIC	0.047MF		50V	
C026	1-101-006-00	CERAMIC	0.047MF		50V	
C027	1-123-608-00	ELECT	0.22MF	20%	50V	
C028	1-123-356-00	ELECT	10MF	20%	16V	
C029	1-123-356-00	ELECT	10MF	20%	16V	
C030	1-102-820-00	CERAMIC	330PF	5%	50V	
C031	1-102-973-00	CERAMIC	100PF	5%	50V	
C032	1-102-820-00	CERAMIC	330PF	5%	50V	
C033	1-102-942-00	CERAMIC	5PF	0.5PF	50V	
C034	1-102-959-00	CERAMIC	22PF	5%	50V	
C035	1-102-959-00	CERAMIC	22PF	5%	50V	
C038	1-101-006-00	CERAMIC	0.047MF		50V	
C040	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C041	1-101-361-00	CERAMIC	150PF	5%	50V	
C042	1-123-369-00	ELECT	4.7MF	20%	25V	
C045	1-123-382-00	ELECT	3.3MF	20%	50V	
C046	1-101-880-00	CERAMIC	47PF	5%	50V	
C049	1-101-006-00	CERAMIC	0.047MF		50V	
C050	1-102-980-00	CERAMIC	270PF	5%	50V	
C052	1-101-005-00	CERAMIC	0.022MF		50V	
C053	1-101-006-00	CERAMIC	0.047MF		50V	
C054	1-101-004-00	CERAMIC	0.01MF		50V	
C056	1-102-945-00	CERAMIC	8PF	0.5PF	50V	
C057	1-102-963-00	CERAMIC	33PF	5%	50V	
C058	1-101-006-00	CERAMIC	0.047MF		50V	
C059	1-102-976-00	CERAMIC	180PF	5%	50V	
C060	1-102-976-00	CERAMIC	180PF	5%	50V	
C061	1-101-361-00	CERAMIC	150PF	5%	50V	
C064	1-102-976-00	CERAMIC	180PF	5%	50V	
C065	1-102-971-00	CERAMIC	82PF	5%	50V	
C066	1-102-946-00	CERAMIC	9PF	0.5PF	50V	
C067	1-102-820-00	CERAMIC	330PF	5%	50V	
C068	1-102-960-00	CERAMIC	24PF	5%	50V	
C073	1-101-006-00	CERAMIC	0.047MF		50V	
C076	1-102-947-00	CERAMIC	10PF	5%	50V	
C100	1-101-006-00	CERAMIC	0.047MF		50V	
C101	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C102	1-101-004-00	CERAMIC	0.01MF		50V	
C103	1-101-884-00	CERAMIC	56PF	5%	50V	
C104	1-102-959-00	CERAMIC	22PF	5%	50V	
C105	1-123-381-00	ELECT	2.2MF	20%	50V	
C106	1-123-369-00	ELECT	4.7MF	20%	25V	
C107	1-101-884-00	CERAMIC	56PF	5%	50V	

When indicating parts by reference number, please include the board name.

VI-9AG

Ref.No	Part No.	Description			Remark
C109	1-101-006-00	CERAMIC	0.047MF		50V
C110	1-123-381-00	ELECT	2.2MF	20%	50V
C111	1-123-369-00	ELECT	4.7MF	20%	25V
C112	1-123-369-00	ELECT	4.7MF	20%	25V
C114	1-102-942-00	CERAMIC	5PF	0.5PF	50V
C115	1-101-888-00	CERAMIC	68PF	5%	50V
C116	1-102-815-00	CERAMIC	110PF	5%	50V
C117	1-102-978-00	CERAMIC	220PF	5%	50V
C118	1-123-307-00	ELECT	100MF	20%	6.3V
C119	1-101-888-00	CERAMIC	68PF	5%	50V
C120	1-101-886-00	CERAMIC	62PF	5%	50V
C121	1-101-004-00	CERAMIC	0.01MF		50V
C122	1-101-884-00	CERAMIC	56PF	5%	50V
C123	1-101-004-00	CERAMIC	0.01MF		50V
C124	1-102-959-00	CERAMIC	22PF	5%	50V
C125	1-123-356-00	ELECT	10MF	20%	16V
C126	1-102-074-00	CERAMIC	0.001MF	10%	50V
C127	1-102-074-00	CERAMIC	0.001MF	10%	50V
C128	1-101-006-00	CERAMIC	0.047MF		50V
C129	1-123-308-00	ELECT	220MF	20%	6.3V
C130	1-101-006-00	CERAMIC	0.047MF		50V
C131	1-101-006-00	CERAMIC	0.047MF		50V
C132	1-123-330-00	ELECT	22MF	20%	16V
C133	1-101-004-00	CERAMIC	0.01MF		50V
C135	1-102-074-00	CERAMIC	0.001MF	10%	50V
C136	1-102-966-00	CERAMIC	43PF	5%	50V
C137	1-102-074-00	CERAMIC	0.001MF	10%	50V
C139	1-102-074-00	CERAMIC	0.001MF	10%	50V
C140	1-102-127-00	CERAMIC	0.0068MF	10%	50V
C141	1-123-382-00	ELECT	3.3MF	20%	50V
C142	1-102-074-00	CERAMIC	0.001MF	10%	50V
C143	1-102-074-00	CERAMIC	0.001MF	10%	50V
C144	1-101-006-00	CERAMIC	0.047MF		50V
C145	1-123-356-00	ELECT	10MF	20%	16V
C146	1-102-815-00	CERAMIC	110PF	5%	50V
C147	1-101-004-00	CERAMIC	0.01MF		50V
C148	1-102-074-00	CERAMIC	0.001MF	10%	50V
C150	1-102-074-00	CERAMIC	0.001MF	10%	50V
C151	1-101-361-00	CERAMIC	150PF	5%	50V
C152	1-102-824-00	CERAMIC	470PF	5%	50V
C153	1-102-953-00	CERAMIC	18PF	5%	50V
C154	1-123-381-00	ELECT	2.2MF	20%	50V
C156	1-102-953-00	CERAMIC	18PF	5%	50V
C159	1-124-239-00	ELECT	6.8MF	20%	25V
C160	1-123-330-00	ELECT	22MF	20%	16V
C161	1-102-963-00	CERAMIC	33PF	5%	50V
C162	1-101-884-00	CERAMIC	56PF	5%	50V
C163	1-102-978-00	CERAMIC	220PF	5%	50V
C164	1-102-978-00	CERAMIC	220PF	5%	50V
C172	1-101-880-00	CERAMIC	47PF	5%	50V
C200	1-101-006-00	CERAMIC	0.047MF		50V
C201	1-101-006-00	CERAMIC	0.047MF		50V
C202	1-101-004-00	CERAMIC	0.01MF		50V
C203	1-101-004-00	CERAMIC	0.01MF		50V
C204	1-101-004-00	CERAMIC	0.01MF		50V
C206	1-101-004-00	CERAMIC	0.01MF		50V
C207	1-102-074-00	CERAMIC	0.001MF	10%	50V
C208	1-102-942-00	CERAMIC	5PF	0.5PF	50V
C209	1-123-356-00	ELECT	10MF	20%	16V
C210	1-101-004-00	CERAMIC	0.01MF		50V
C211	1-102-820-00	CERAMIC	330PF	5%	50V
C212	1-101-004-00	CERAMIC	0.01MF		50V
C213	1-102-820-00	CERAMIC	330PF	5%	50V
C214	1-101-006-00	CERAMIC	0.047MF		50V
C215	1-102-820-00	CERAMIC	330PF	5%	50V
C216	1-102-947-00	CERAMIC	10PF	5%	50V
C217	1-102-966-00	CERAMIC	43PF	5%	50V
C218	1-102-074-00	CERAMIC	0.001MF	10%	50V
C219	1-102-820-00	CERAMIC	330PF	5%	50V
C220	1-102-820-00	CERAMIC	330PF	5%	50V
C221	1-101-004-00	CERAMIC	0.01MF		50V
C222	1-124-239-00	ELECT	6.8MF	20%	25V
C223	1-101-005-00	CERAMIC	0.022MF		50V
C224	1-123-369-00	ELECT	4.7MF	20%	25V
C225	1-123-356-00	ELECT	10MF	20%	16V
C227	1-101-004-00	CERAMIC	0.01MF		50V
C228	1-101-006-00	CERAMIC	0.047MF		50V
C229	1-123-381-00	ELECT	2.2MF	20%	50V
C230	1-123-608-00	ELECT	0.22MF	20%	50V
C231	1-101-005-00	CERAMIC	0.022MF		50V
C232	1-102-074-00	CERAMIC	0.001MF	10%	50V
C233	1-101-006-00	CERAMIC	0.047MF		50V
C234	1-123-381-00	ELECT	2.2MF	20%	50V
C235	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C237	1-101-880-00	CERAMIC	47PF	5%	50V
C238	1-102-820-00	CERAMIC	330PF	5%	50V
C239	1-102-074-00	CERAMIC	0.001MF	10%	50V
C240	1-123-381-00	ELECT	2.2MF	20%	50V
C241	1-102-074-00	CERAMIC	0.001MF	10%	50V
C244	1-101-880-00	CERAMIC	47PF	5%	50V
C247	1-123-356-00	ELECT	10MF	20%	16V
C248	1-101-006-00	CERAMIC	0.047MF		50V
C249	1-102-820-00	CERAMIC	330PF	5%	50V
C250	1-123-607-00	ELECT	0.1MF	20%	50V
C251	1-123-609-00	ELECT	0.33MF	20%	50V
C252	1-102-963-00	CERAMIC	33PF	5%	50V
C253	1-102-973-00	CERAMIC	100PF	5%	50V
C254	1-101-880-00	CERAMIC	47PF	5%	50V
C255	1-101-880-00	CERAMIC	47PF	5%	50V
C256	1-123-356-00	ELECT	10MF	20%	16V
C257	1-161-025-00	CERAMIC	0.1MF	10%	25V
C258	1-101-888-00	CERAMIC	68PF	5%	50V
C259	1-102-951-00	CERAMIC	15PF	5%	50V
C260	1-102-976-00	CERAMIC	180PF	5%	50V
C261	1-102-945-00	CERAMIC	8PF	0.5PF	50V
C262	1-101-006-00	CERAMIC	0.047MF		50V

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
C264	1-101-006-00	CERAMIC	0.047MF		50V
C265	1-101-004-00	CERAMIC	0.01MF		50V
C266	1-101-006-00	CERAMIC	0.047MF		50V
C267	1-101-006-00	CERAMIC	0.047MF		50V
C269	1-101-004-00	CERAMIC	0.01MF		50V
C270	1-102-074-00	CERAMIC	0.001MF	10%	50V
C271	1-101-004-00	CERAMIC	0.01MF		50V
C300	1-123-607-00	ELECT	0.1MF	20%	50V
C301	1-102-973-00	CERAMIC	100PF	5%	50V
C302	1-123-607-00	ELECT	0.1MF	20%	50V
C303	1-102-973-00	CERAMIC	100PF	5%	50V
C304	1-123-381-00	ELECT	2.2MF	20%	50V
C305	1-123-380-00	ELECT	1MF	20%	50V
C501	1-101-361-00	CERAMIC	150PF	5%	50V
C502	1-101-004-00	CERAMIC	0.01MF		50V
C850	1-102-973-00	CERAMIC	100PF	5%	50V
C851	1-130-473-00	MYLAR	0.0015MF	5%	50V
C852	1-101-004-00	CERAMIC	0.01MF		50V
C(L12)	1-102-947-00	CERAMIC	10PF	5%	50V
C(R68)	1-101-004-00	CERAMIC	0.01MF		50V

CONNCETOR

CN002	*1-560-890-00	PIN, CONNECTOR 2P
CN003	*1-560-895-00	PIN, CONNECTOR 7P
CN004	*1-560-890-00	PIN, CONNECTOR 2P
CN006	1-561-534-00	SOCKET 21P
CN008	*1-560-893-00	PIN, CONNECTOR 5P
CN011	*1-560-896-00	PIN, CONNECTOR 8P
CN012	*1-560-893-00	PIN, CONNECTOR 5P
CN020	*1-564-187-00	PIN, CONNECTOR

COMPOSITION CIRCUIT BLOCK

CP001	1-232-919-11	COMPOSITION CIRCUIT BLOCK
CP003	1-232-914-11	COMPOSITION CIRCUIT BLOCK
CP004	1-232-917-11	COMPOSITION CIRCUIT BLOCK
CP005	1-232-918-11	COMPOSITION CIRCUIT BLOCK
CP006	1-232-928-11	COMPOSITION CIRCUIT BLOCK
CP007	1-232-935-11	COMPOSITION CIRCUIT BLOCK
CP011	1-232-922-11	COMPOSITION CIRCUIT BLOCK
CP012	1-232-920-11	COMPOSITION CIRCUIT BLOCK
CP013	1-232-938-11	COMPOSITION CIRCUIT BLOCK
CP014	1-232-915-11	COMPOSITION CIRCUIT BLOCK
CP015	1-232-912-11	COMPOSITION CIRCUIT BLOCK
CP016	1-232-931-11	COMPOSITION CIRCUIT BLOCK
CP017	1-232-913-11	COMPOSITION CIRCUIT BLOCK
CP019	1-232-916-11	COMPOSITION CIRCUIT BLOCK
CP020	1-232-932-11	COMPOSITION CIRCUIT BLOCK
CP021	1-232-936-11	COMPOSITION CIRCUIT BLOCK
CP022	1-232-934-11	COMPOSITION CIRCUIT BLOCK
CP100	1-232-927-11	COMPOSITION CIRCUIT BLOCK

TRIMMER

CV200	1-141-227-00	CAP, CERAMIC TRIMMER

Ref.No	Part No.	Description	Remark

DIODE

D001	8-719-911-19	DIODE 1SS119
D002	8-719-151-07	DIODE RD5.1E-B
D003	8-719-815-87	DIODE 1S1587
D004	8-719-815-87	DIODE 1S1587
D005	8-719-815-87	DIODE 1S1587
D006	8-719-815-87	DIODE 1S1587
D008	8-719-911-19	DIODE 1SS119
D009	8-719-911-19	DIODE 1SS119
D010	8-719-815-87	DIODE 1S1587
D102	8-719-000-12	DIODE MC931
D103	8-719-000-06	DIODE MC921
D106	8-719-000-12	DIODE MC931
D107	8-719-000-12	DIODE MC931
D200	8-719-100-38	DIODE RD6.2EB1
D203	8-719-000-06	DIODE MC921
D204	8-719-000-06	DIODE MC921
D950	8-719-911-19	DIODE 1SS119
D951	8-719-911-19	DIODE 1SS119

DELAY LINE

DL100	1-415-282-31	DELAY LINE
DL101	1-415-386-21	DELAY LINE, 1H (13.3MHZ)

FILTER

FL100	1-235-440-11	FILTER, BAND PASS (3.7MHZ)
FL101	1-235-441-11	FILTER, BAND PASS (5.17MHZ)
FL200	1-409-408-11	C.E TRAP
FL201	1-409-396-11	REC C TRAP
FL202	1-235-437-11	BPF, PB C

IC

IC001	8-752-013-00	IC CX20130
IC002	8-752-013-10	IC CX20131
IC003	8-752-013-20	IC CX20132
IC004	8-759-302-94	CX22031
IC005	8-759-913-64	IC CX23064
IC006	8-759-202-68	IC CX20147
IC007	1-235-497-11	HBD1754B (REC PILOT LPF)
IC008	8-759-700-40	IC NJM4560S

CIOL

L001	1-408-421-00	MICRO INDUCTOR 100UH
L002	1-408-413-00	MICRO INDUCTOR 22UH
L004	1-408-425-00	MICRO INDUCTOR 220UH
L005	1-408-426-00	MICRO INDUCTOR 270UH
L006	1-408-425-00	MICRO INDUCTOR 220UH
L007	1-408-420-00	MICRO INDUCTOR 82UH
L010	1-408-424-00	MICRO INDUCTOR 180UH
L013	1-408-423-00	MICRO INDUCTOR 150UH
L014	1-408-422-00	MICRO INDUCTOR 120UH
L017	1-408-427-00	MICRO INDUCTOR 330UH

When indicating parts by reference number, please include the board name.

VI-9AG

Ref.No	Part No.	Description	Remark
L018	1-408-422-00	MICRO INDUCTOR 120UH	
L019	1-408-423-00	MICRO INDUCTOR 150UH	
L020	1-408-416-00	MICRO INDUCTOR 39UH	
L021	1-410-072-21	MICRO INDUCTOR 820UH	
L022	1-408-421-00	MICRO INDUCTOR 100UH	
L100	1-408-397-00	MICRO INDUCTOR 1UH	
L101	1-408-397-00	MICRO INDUCTOR 1UH	
L103	1-408-418-00	MICRO INDUCTOR 56UH	
L104	1-408-420-00	MICRO INDUCTOR 82UH	
L105	1-408-418-00	MICRO INDUCTOR 56UH	
L106	1-408-421-00	MICRO INDUCTOR 100UH	
L107	1-408-419-00	MICRO INDUCTOR 68UH	
L108	1-408-413-00	MICRO INDUCTOR 22UH	
L109	1-408-408-00	MICRO INDUCTOR 8.2UH	
L110	1-408-412-00	MICRO INDUCTOR 18UH	
L111	1-408-413-00	MICRO INDUCTOR 22UH	
L112	1-408-418-00	MICRO INDUCTOR 56UH	
L114	1-408-417-00	MICRO INDUCTOR 47UH	
L115	1-408-417-00	MICRO INDUCTOR 47UH	
L116	1-408-414-00	MICRO INDUCTOR 27UH	
L200	1-408-424-00	MICRO INDUCTOR 180UH	
L201	1-408-413-00	MICRO INDUCTOR 22UH	
L203	1-408-427-00	MICRO INDUCTOR 330UH	
L206	1-408-425-00	MICRO INDUCTOR 220UH	
L207	1-408-420-00	MICRO INDUCTOR 82UH	
L208	1-408-407-00	MICRO INDUCTOR 6.8UH	
L209	1-408-427-00	MICRO INDUCTOR 330UH	

VARIABLE COIL

LV001	1-409-397-11	TRAP	
LV100	1-408-512-00	COIL (VARIABLE)	

IC LINK

PS200⚠	1-532-679-00	LINK, IC (ICP-N15)	

TRANSISTOR

Q003	8-729-117-54	TRANSISTOR 2SA1175	
Q004	8-729-117-54	TRANSISTOR 2SA1175	
Q007	8-729-117-54	TRANSISTOR 2SA1175	
Q008	8-729-384-48	TRANSISTOR 2SA844	
Q009	8-729-245-83	TRANSISTOR 2SC2458	
Q010	8-729-245-83	TRANSISTOR 2SC2458	
Q011	8-729-900-36	TRANSISTOR DTC124ES	
Q012	8-729-117-54	TRANSISTOR 2SA1175	
Q013	8-729-117-54	TRANSISTOR 2SA1175	
Q014	8-729-900-36	TRANSISTOR DTC124ES	
Q015	8-729-900-36	TRANSISTOR DTC124ES	
Q016	8-729-245-83	TRANSISTOR 2SC2458	
Q017	8-729-900-36	TRANSISTOR DTC124ES	
Q021	8-729-900-89	TRANSISTOR DTC144ES	
Q100	8-729-900-36	TRANSISTOR DTC124ES	
Q101	8-729-900-36	TRANSISTOR DTC124ES	
Q102	8-729-117-54	TRANSISTOR 2SA1175	
Q103	8-729-245-83	TRANSISTOR 2SC2458	
Q104	8-729-245-83	TRANSISTOR 2SC2458	
Q105	8-729-245-83	TRANSISTOR 2SC2458	
Q107	8-729-900-36	TRANSISTOR DTC124ES	
Q108	8-729-900-36	TRANSISTOR DTC124ES	
Q109	8-729-900-36	TRANSISTOR DTC124ES	
Q110	8-729-245-83	TRANSISTOR 2SC2458	
Q200	8-729-245-83	TRANSISTOR 2SC2458	
Q201	8-729-900-36	TRANSISTOR DTC124ES	
Q203	8-729-603-50	TRANSISTOR 2SC403SP	
Q204	8-729-603-50	TRANSISTOR 2SC403SP	
Q205	8-729-900-36	TRANSISTOR DTC124ES	
Q206	8-729-117-54	TRANSISTOR 2SA1175-F	
Q207	8-729-900-36	TRANSISTOR DTC124ES	
Q208	8-729-245-83	TRANSISTOR 2SC2458	
Q209	8-729-245-83	TRANSISTOR 2SC2458	
Q212	8-729-245-83	TRANSISTOR 2SC2458	
Q213	8-729-900-36	TRANSISTOR DTC124ES	
Q214	8-729-900-36	TRANSISTOR DTC124ES	
Q215	8-729-245-83	TRANSISTOR 2SC2458	
Q216	8-729-245-83	TRANSISTOR 2SC2458	
Q217	8-729-245-83	TRANSISTOR 2SC2458	
Q218	8-729-900-61	TRANSISTOR DTA114ES	
Q258	8-729-900-36	TRANSISTOR DTC124ES	
Q300	8-729-900-36	TRANSISTOR DTC124ES	

RESISTOR

R001	1-247-881-00	CARBON	120K	5%	1/6W	
R002	1-247-895-00	CARBON	470K	5%	1/6W	
R003	1-247-857-00	CARBON	12K	5%	1/6W	
R004	1-247-859-00	CARBON	15K	5%	1/6W	
R005	1-249-437-11	CARBON	47K	5%	1/6W	
R006	1-249-437-11	CARBON	47K	5%	1/6W	
R007	1-249-417-11	CARBON	1K	5%	1/6W	
R008	1-247-891-00	CARBON	330K	5%	1/6W	
R010	1-249-417-11	CARBON	1K	5%	1/6W	
R011	1-249-441-11	CARBON	100K	5%	1/6W	
R012	1-247-875-00	CARBON	68K	5%	1/6W	
R013	1-249-417-11	CARBON	1K	5%	1/6W	
R014	1-249-437-11	CARBON	47K	5%	1/6W	
R015	1-249-437-11	CARBON	47K	5%	1/6W	
R016	1-249-437-11	CARBON	47K	5%	1/6W	
R017	1-247-873-00	CARBON	56K	5%	1/6W	
R018	1-249-425-11	CARBON	4.7K	5%	1/6W	
R019	1-249-425-11	CARBON	4.7K	5%	1/6W	
R020	1-247-833-00	CARBON	1.2K	5%	1/6W	
R022	1-249-433-11	CARBON	22K	5%	1/6W	
R024	1-249-437-11	CARBON	47K	5%	1/6W	
R025	1-249-437-11	CARBON	47K	5%	1/6W	
R026	1-249-437-11	CARBON	47K	5%	1/6W	
R027	1-249-437-11	CARBON	47K	5%	1/6W	
R029	1-247-839-00	CARBON	2.2K	5%	1/6W	
R030	1-249-422-11	CARBON	2.7K	5%	1/6W	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R031	1-247-839-00	CARBON	2.2K	5%	1/6W	
R032	1-247-845-00	CARBON	3.9K	5%	1/6W	
R033	1-247-883-00	CARBON	150K	5%	1/6W	
R037	1-247-853-00	CARBON	8.2K	5%	1/6W	
R040	1-247-823-00	CARBON	470	5%	1/6W	
R042	1-249-417-11	CARBON	1K	5%	1/6W	
R043	1-249-433-11	CARBON	22K	5%	1/6W	
R045	1-247-829-00	CARBON	820	5%	1/6W	
R050	1-247-839-00	CARBON	2.2K	5%	1/6W	
R051	1-247-839-00	CARBON	2.2K	5%	1/6W	
R052	1-249-422-11	CARBON	2.7K	5%	1/6W	
R054	1-247-837-00	CARBON	1.8K	5%	1/6W	
R055	1-247-804-00	CARBON	75	5%	1/6W	
R056	1-247-797-00	CARBON	39	5%	1/6W	
R057	1-247-797-00	CARBON	39	5%	1/6W	
R058	1-249-414-11	CARBON	560	5%	1/6W	
R059	1-247-845-00	CARBON	3.9K	5%	1/6W	
R060	1-247-821-00	CARBON	390	5%	1/6W	
R063	1-247-821-00	CARBON	390	5%	1/6W	
R064	1-247-857-00	CARBON	12K	5%	1/6W	
R065	1-249-414-11	CARBON	560	5%	1/6W	
R066	1-249-415-11	CARBON	680	5%	1/6W	
R067	1-247-805-00	CARBON	82	5%	1/6W	
R069	1-247-829-00	CARBON	820	5%	1/6W	
R070	1-247-883-00	CARBON	150K	5%	1/6W	
R072	1-247-815-00	CARBON	220	5%	1/6W	
R073	1-249-425-11	CARBON	4.7K	5%	1/6W	
R074	1-249-425-11	CARBON	4.7K	5%	1/6W	
R075	1-249-423-11	CARBON	3.3K	5%	1/6W	
R077	1-249-414-11	CARBON	680	5%	1/6W	
R079	1-249-417-11	CARBON	1K	5%	1/6W	
R080	1-249-429-11	CARBON	10K	5%	1/6W	
R084	1-247-815-00	CARBON	220	5%	1/6W	
R085	1-249-433-11	CARBON	22K	5%	1/6W	
R086	1-247-853-00	CARBON	8.2K	5%	1/6W	
R087	1-249-432-11	CARBON	18K	5%	1/6W	
R101	1-247-809-00	CARBON	120	5%	1/6W	
R102	1-247-857-00	CARBON	12K	5%	1/6W	
R103	1-249-433-11	CARBON	22K	5%	1/6W	
R104	1-249-433-11	CARBON	22K	5%	1/6W	
R105	1-247-895-00	CARBON	470K	5%	1/6W	
R106	1-247-903-00	CARBON	1M	5%	1/6W	
R107	1-249-405-11	CARBON	100	5%	1/6W	
R108	1-249-429-11	CARBON	10K	5%	1/6W	
R110	1-247-869-00	CARBON	39K	5%	1/6W	
R111	1-247-859-00	CARBON	15K	5%	1/6W	
R113	1-247-833-00	CARBON	1.2K	5%	1/6W	
R114	1-249-425-11	CARBON	4.7K	5%	1/6W	
R122	1-249-417-11	CARBON	1K	5%	1/6W	
R125	1-249-419-11	CARBON	1.5K	5%	1/6W	
R131	1-249-417-11	CARBON	1K	5%	1/6W	
R132	1-247-823-00	CARBON	470	5%	1/6W	
R133	1-249-417-11	CARBON	1K	5%	1/6W	
R134	1-247-809-00	CARBON	120	5%	1/6W	
R135	1-247-821-00	CARBON	390	5%	1/6W	
R136	1-247-809-00	CARBON	120	5%	1/6W	
R137	1-247-817-00	CARBON	270	5%	1/6W	
R138	1-249-437-11	CARBON	47K	5%	1/6W	
R139	1-249-437-11	CARBON	47K	5%	1/6W	
R140	1-249-417-11	CARBON	1K	5%	1/6W	
R141	1-247-849-00	CARBON	5.6K	5%	1/6W	
R142	1-247-859-00	CARBON	15K	5%	1/6W	
R143	1-249-405-11	CARBON	100	5%	1/6W	
R144	1-247-791-00	CARBON	22	5%	1/6W	
R145	1-247-839-00	CARBON	2.2K	5%	1/6W	
R146	1-249-417-11	CARBON	1K	5%	1/6W	
R147	1-249-417-11	CARBON	1K	5%	1/6W	
R151	1-249-419-11	CARBON	1.5K	5%	1/6W	
R155	1-249-437-11	CARBON	47K	5%	1/6W	
R156	1-247-875-00	CARBON	68K	5%	1/6W	
R159	1-249-414-11	CARBON	560	5%	1/6W	
R161	1-247-823-00	CARBON	470	5%	1/6W	
R164	1-249-415-11	CARBON	680	5%	1/6W	
R165	1-249-425-11	CARBON	4.7K	5%	1/6W	
R168	1-249-425-11	CARBON	4.7K	5%	1/6W	
R173	1-247-815-00	CARBON	220	5%	1/6W	
R175	1-249-415-11	CARBON	680	5%	1/6W	
R176	1-249-415-11	CARBON	680	5%	1/6W	
R178	1-249-417-11	CARBON	1K	5%	1/6W	
R179	1-247-895-00	CARBON	470K	5%	1/6W	
R180	1-249-434-11	CARBON	27K	5%	1/6W	
R181	1-249-417-11	CARBON	1K	5%	1/6W	
R182	1-249-429-11	CARBON	10K	5%	1/6W	
R183	1-249-432-11	CARBON	18K	5%	1/6W	
R184	1-249-441-11	CARBON	100K	5%	1/6W	
R185	1-249-422-11	CARBON	2.7K	5%	1/6W	
R186	1-247-859-00	CARBON	15K	5%	1/6W	
R187	1-249-435-11	CARBON	33K	5%	1/6W	
R190	1-249-432-11	CARBON	18K	5%	1/6W	
R200	1-249-435-11	CARBON	33K	5%	1/6W	
R201	1-247-823-00	CARBON	470	5%	1/6W	
R203	1-249-422-11	CARBON	2.7K	5%	1/6W	
R209	1-249-417-11	CARBON	1K	5%	1/6W	
R218	1-249-405-11	CARBON	100	5%	1/6W	
R219	1-247-839-00	CARBON	2.2K	5%	1/6W	
R220	1-249-417-11	CARBON	1K	5%	1/6W	
R221	1-249-417-11	CARBON	1K	5%	1/6W	
R222	1-247-859-00	CARBON	15K	5%	1/6W	
R223	1-249-415-11	CARBON	680	5%	1/6W	
R224	1-247-859-00	CARBON	15K	5%	1/6W	
R225	1-249-425-11	CARBON	4.7K	5%	1/6W	
R226	1-249-433-11	CARBON	22K	5%	1/6W	
R227	1-247-839-00	CARBON	2.2K	5%	1/6W	
R232	1-249-433-11	CARBON	22K	5%	1/6W	
R233	1-249-441-11	CARBON	100K	5%	1/6W	
R234	1-247-851-00	CARBON	6.8K	5%	1/6W	
R235	1-247-839-00	CARBON	2.2K	5%	1/6W	
R236	1-249-437-11	CARBON	47K	5%	1/6W	
R237	1-249-437-11	CARBON	47K	5%	1/6W	
R238	1-249-425-11	CARBON	4.7K	5%	1/6W	
R239	1-249-417-11	CARBON	1K	5%	1/6W	
R240	1-249-425-11	CARBON	4.7K	5%	1/6W	
R248	1-247-885-00	CARBON	180K	5%	1/6W	
R251	1-249-429-11	CARBON	10K	5%	1/6W	
R253	1-249-425-11	CARBON	4.7K	5%	1/6W	
R254	1-249-437-11	CARBON	47K	5%	1/6W	
R261	1-249-417-11	CARBON	1K	5%	1/6W	
R262	1-249-422-11	CARBON	2.7K	5%	1/6W	
R264	1-249-417-11	CARBON	1K	5%	1/6W	
R265	1-247-823-00	CARBON	470	5%	1/6W	
R266	1-249-405-11	CARBON	100	5%	1/6W	
R267	1-249-415-11	CARBON	680	5%	1/6W	
R268	1-249-435-11	CARBON	33K	5%	1/6W	
R269	1-249-433-11	CARBON	22K	5%	1/6W	
R270	1-249-417-11	CARBON	1K	5%	1/6W	
R271	1-249-425-11	CARBON	4.7K	5%	1/6W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R272	1-247-849-00	CARBON	5.6K	5%	1/6W	
R273	1-249-435-11	CARBON	33K	5%	1/6W	
R274	1-249-425-11	CARBON	4.7K	5%	1/6W	
R277	1-249-437-11	CARBON	47K	5%	1/6W	
R280	1-247-829-00	CARBON	820	5%	1/6W	
R282	1-249-433-11	CARBON	22K	5%	1/6W	
R284	1-249-417-11	CARBON	1K	5%	1/6W	
R285	1-249-422-11	CARBON	2.7K	5%	1/6W	
R286	1-247-815-00	CARBON	220	5%	1/6W	
R287	1-249-417-11	CARBON	1K	5%	1/6W	
R288	1-249-417-11	CARBON	1K	5%	1/6W	
R289	1-249-417-11	CARBON	1K	5%	1/6W	
R290	1-247-840-00	CARBON	2.4K	5%	1/6W	
R292	1-249-425-11	CARBON	4.7K	5%	1/6W	
R293	1-249-417-11	CARBON	1K	5%	1/6W	
R300	1-247-887-00	CARBON	220K	5%	1/6W	
R301	1-249-437-11	CARBON	47K	5%	1/6W	
R302	1-249-437-11	CARBON	47K	5%	1/6W	
R303	1-247-887-00	CARBON	220K	5%	1/6W	
R304	1-249-437-11	CARBON	47K	5%	1/6W	
R305	1-249-437-11	CARBON	47K	5%	1/6W	
R306	1-249-415-11	CARBON	680	5%	1/6W	
R307	1-249-415-11	CARBON	680	5%	1/6W	
R309	1-247-783-00	CARBON	10	5%	1/6W	
R310	1-249-417-11	CARBON	1K	5%	1/6W	
R311 ⚠	1-249-417-11	CARBON	1K	5%	1/6W	
R312	1-247-873-00	CARBON	56K	5%	1/6W	
R501	1-249-417-11	CARBON	1K	5%	1/6W	
R750	1-247-839-00	CARBON	2.2K	5%	1/6W	
R751	1-247-821-00	CARBON	390	5%	1/6W	
R752	1-247-805-00	CARBON	82	5%	1/6W	
R753	1-247-839-00	CARBON	2.2K	5%	1/6W	
R754	1-249-414-11	CARBON	560	5%	1/6W	
R755	1-247-839-00	CARBON	2.2K	5%	1/6W	
R756	1-247-839-00	CARBON	470	5%	1/6W	
R757	1-249-429-11	CARBON	10K	5%	1/6W	
R758	1-247-874-00	CARBON	62K	5%	1/6W	
R759	1-247-821-00	CARBON	390	5%	1/6W	
R760	1-249-417-11	CARBON	1K	5%	1/6W	
R761	1-249-432-11	CARBON	18K	5%	1/6W	
R762	1-249-417-11	CARBON	1K	5%	1/6W	
R765	1-249-433-11	CARBON	22K	5%	1/6W	
R(C242)	1-247-815-00	CARBON	220	5%	1/6W	
R(L77)	1-247-811-00	CARBON	150	5%	1/6W	

VARIABLE RESISTOR

RV001	1-228-995-00	RES, ADJ, CARBON	22K
RV002	1-228-993-00	RES, ADJ, CARBON	4.7K
RV003	1-228-995-00	RES, ADJ, CARBON	22K
RV004	1-228-994-00	RES, ADJ, CARBON	10K
RV005	1-228-995-00	RES, ADJ, CARBON	22K
RV006	1-228-995-00	RES, ADJ, CARBON	22K
RV100	1-228-995-00	RES, ADJ, CARBON	22K
RV101	1-228-996-00	RES, ADJ, CARBON	47K
RV102	1-228-998-00	RES, ADJ, CARBON	220K
RV103	1-228-997-00	RES, ADJ, CARBON	100K
RV201	1-228-990-00	RES, ADJ, CARBON	1K
RV202	1-228-995-00	RES, ADJ, CARBON	22K
RV203	1-228-989-00	RES, ADJ, CARBON	470
RV204	1-228-994-00	RES, ADJ, CARBON	10K
RV205	1-228-994-00	RES, ADJ, CARBON	10K
RV206	1-228-995-00	RES, ADJ, CARBON	22K

Ref.No	Part No.	Description				Remark
		CRYSTAL				
X100	1-567-442-11	VIBRATOR, CRYSTAL				
X200	1-567-146-11	VIBRATOR, CRYSTAL				
X201	1-567-345-11	VIBRATOR, CRYSTAL				
	*1-617-208-11	SK-9 BOARD **********				
		CAPACITOR				
C601	1-161-025-00	CERAMIC	0.1MF	10%	25V	
C602	1-161-023-00	CERAMIC	0.068MF	10%	25V	
		TRANSISTOR				
Q111	8-729-900-36	TRANSISTOR DTC124ES				
Q401	8-729-900-89	TRANSISTOR DTC144ES				
Q402	8-729-178-54	TRANSISTOR 2SC2785-F				
		RESISTOR				
R600	1-249-417-11	CARBON	1K	5%	1/6W	
R601	1-249-425-11	CARBON	4.7K	5%	1/6W	
	*1-619-504-11	NC-5 BOARD **********				
		CAPACITOR				
C001	1-124-225-00	ELECT	100MF	20%	6.3V	
C002	1-102-980-00	CERAMIC	270PF	5%	50V	
C003	1-102-961-00	CERAMIC	27PF	5%	50V	
C004	1-124-245-00	ELECT	4.7MF	20%	16V	
C005	1-124-233-00	ELECT	10MF	20%	16V	
C006	1-161-059-00	CERAMIC	0.047MF	10%	25V	
		COIL				
L001	1-408-984-21	MICRO INDUCTOR 150UH				
		TRANSISTOR				
Q001	8-729-245-83	TRANSISTOR 2SC2458				
Q002	8-729-245-83	TRANSISTOR 2SC2458				
Q003	8-729-245-83	TRANSISTOR 2SC2458				
		RESISTOR				
R001	1-249-417-11	CARBON	1K	5%	1/6W	
R002	1-249-405-11	CARBON	100	5%	1/6W	
R003	1-247-839-00	CARBON	2.2K	5%	1/6W	
R004	1-247-838-00	CARBON	2K	5%	1/6W	
R005	1-247-833-00	CARBON	1.2K	5%	1/6W	
R006	1-247-833-00	CARBON	1.2K	5%	1/6W	
R007	1-247-817-00	CARBON	270	5%	1/6W	
✱	(1-249-417-11	CARBON	1K	5%	1/6W)	
R008	1-249-433-11	CARBON	22K	5%	1/6W	
R009	1-247-857-00	CARBON	12K	5%	1/6W	
R010	1-249-423-11	CARBON	3.3K	5%	1/6W	

✱ R007 is an adjusting resistor. When it is replaced by occasion of repair, use a part having the same constant as the part which has been installed.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
	*A-7060-156-A	SS-38F BOARD, COMPLETE (AEP MODEL)			
	*A-7060-163-A	SS-38G BOARD, COMPLETE (UK MODEL)			
		**********			
		CAPACITOR			
C001	1-130-489-00	MYLAR	0.033MF	5%	50V
C004	1-123-356-00	ELECT	10MF	20%	16V
C005	1-123-380-00	ELECT	1MF	20%	50V
C006	1-123-380-00	ELECT	1MF	20%	50V
C010	1-161-013-00	CERAMIC	0.01MF	10%	25V
C098	1-162-306-31	CERAMIC	0.01MF	20%	16V
C099	1-162-306-31	CERAMIC	0.01MF	20%	16V
C102	1-161-055-00	CERAMIC	0.022MF	10%	25V
C103	1-161-013-00	CERAMIC	0.01MF	10%	25V
C105	1-161-013-00	CERAMIC	0.01MF	10%	25V
C106	1-161-013-00	CERAMIC	0.01MF	10%	25V
C107	1-101-880-00	CERAMIC	47PF	5%	50V
C108	1-101-880-00	CERAMIC	47PF	5%	50V
C109	1-161-043-00	CERAMIC	0.0022MF	10%	25V
C110	1-125-373-11	DOUBLE LAYERS	22000MF		5.5V
C111	1-161-025-00	CERAMIC	0.1MF	10%	25V
C112	1-123-356-00	ELECT	10MF	20%	16V
C113	1-161-025-00	CERAMIC	0.1MF	10%	25V
C114	1-123-379-00	ELECT	0.47MF	20%	50V
C115	1-123-379-00	ELECT	0.47MF	20%	50V
C116	1-161-013-00	CERAMIC	0.01MF	10%	25V
C117	1-123-380-00	ELECT	1MF	20%	50V
C118	1-161-059-00	CERAMIC	0.047MF	10%	25V
C121	1-161-013-00	CERAMIC	0.01MF	10%	25V
C122	1-102-973-00	CERAMIC	100PF	5%	50V
C123	1-131-343-00	TANTALUM	0.22MF	20%	35V
C131	1-119-353-00	ELECT	220MF		10V
C136	1-161-059-00	CERAMIC	0.047MF	10%	25V
C138	1-161-013-00	CERAMIC	0.01MF	10%	25V
C190	1-102-973-00	CERAMIC	100PF	5%	50V
C191	1-102-973-00	CERAMIC	100PF	5%	50V
C201	1-130-481-00	MYLAR	0.0068MF	5%	50V
C202	1-124-271-00	ELECT	1MF	20%	50V
C203	1-102-973-00	CERAMIC	100PF	5%	50V
C209	1-161-013-00	CERAMIC	0.01MF	10%	25V
C218	1-123-356-00	ELECT	10MF	20%	16V
C219	1-161-057-00	CERAMIC	0.033MF	10%	25V
C220	1-161-047-00	CERAMIC	0.0047MF	10%	25V
C231	1-124-268-00	ELECT	0.22MF	20%	50V
C233	1-124-275-00	ELECT	2.2MF	20%	35V
C234	1-161-059-00	CERAMIC	0.047MF	10%	25V
C241	1-124-282-00	ELECT	22MF	20%	25V
C299	1-123-356-00	ELECT	10MF	20%	16V
C301	1-102-517-00	CERAMIC	30PF	5%	50V
C302	1-102-531-00	CERAMIC	150PF	5%	50V
C303	1-102-905-00	CERAMIC	130PF	5%	50V
C304	1-102-905-00	CERAMIC	130PF	5%	50V
C305	1-102-905-00	CERAMIC	130PF	5%	50V
C306	1-102-905-00	CERAMIC	130PF	5%	50V
C307	1-124-271-00	ELECT	1MF	20%	50V
C308	1-161-055-00	CERAMIC	0.022MF	10%	25V
C309	1-123-330-00	ELECT	22MF	20%	16V
C310	1-123-330-00	ELECT	22MF	20%	16V
C311	1-123-330-00	ELECT	22MF	20%	16V
C320	1-123-330-00	ELECT	22MF	20%	16V
C321	1-161-055-00	CERAMIC	0.022MF	10%	25V
C322	1-123-330-00	ELECT	22MF	20%	16V
C333	1-161-055-00	CERAMIC	0.022MF	10%	25V
C350	1-124-271-00	ELECT	1MF	20%	50V
C401	1-161-013-00	CERAMIC	0.01MF	10%	25V
C402	1-161-013-00	CERAMIC	0.01MF	10%	25V
C501	1-130-475-00	MYLAR	0.0022MF	5%	50V
C502	1-130-475-00	MYLAR	0.0022MF	5%	50V
		CONNECTOR			
CN101	*1-560-895-00	PIN, CONNECTOR 7P			
CN102	*1-560-900-00	PIN, CONNECTOR 12P			
CN103	*1-560-893-00	PIN, CONNECTOR 5P			
CN105	*1-560-897-00	PIN, CONNECTOR 9P			
CN106	*1-560-897-00	PIN, CONNECTOR 9P			
CN107	*1-560-895-00	PIN, CONNECTOR 7P			
CN108	*1-560-893-00	PIN, CONNECTOR 5P			
CN109	*1-560-898-00	PIN, CONNECTOR 10P			
CN110	*1-560-900-00	PIN, CONNECTOR 12P			
CN113	*1-560-890-00	PIN, CONNECTOR 2P			
CN114	*1-560-895-00	PIN, CONNECTOR 7P			
CN117	*1-560-894-00	PIN, CONNECTOR 6P			
CN201	*1-560-895-00	PIN, CONNECTOR 7P			
CN202	*1-560-894-00	PIN, CONNECTOR 6P			
CN301	*1-560-892-00	PIN, CONNECTOR 4P			
CN601	*1-560-891-00	PIN, CONNECTOR 3P			
CN602	*1-560-890-00	PIN, CONNECTOR 2P			
		COMPOSITION CIRCUIT BLOCK			
CP008	1-232-789-11	COMPOSITION CIRCUIT BLOCK			
CP009	1-232-787-11	COMPOSITION CIRCUIT BLOCK			
CP010	1-232-790-11	COMPOSITION CIRCUIT BLOCK			
CP011	1-232-845-11	COMPOSITION CIRCUIT BLOCK			
CP012	1-232-786-11	COMPOSITION CIRCUIT BLOCK			
CP013	1-232-851-11	COMPOSITION CIRCUIT BLOCK			
CP018	1-232-841-11	COMPOSITION CIRCUIT BLOCK			
CP020	1-232-852-11	COMPOSITION CIRCUIT BLOCK			
CP021	1-232-846-12	COMPOSITION CIRCUIT BLOCK			
CP022	1-232-842-11	COMPOSITION CIRCUIT BLOCK			
CP023	1-232-924-11	COMPOSITION CIRCUIT BLOCK			
CP024	1-232-842-11	COMPOSITION CIRCUIT BLOCK			
CP028	1-232-923-11	COMPOSITION CIRCUIT BLOCK			
CP029	1-232-844-11	COMPOSITION CIRCUIT BLOCK			
CP030	1-232-782-11	COMPOSITION CIRCUIT BLOCK			
CP031	1-232-925-11	COMPOSITION CIRCUIT BLOCK			
CP032	1-232-930-11	COMPOSITION CIRCUIT BLOCK			

When indicating parts by reference number, please include the board name.

SS-38F/G

Ref.No	Part No.	Description	Remark
CP033	1-232-926-11	COMPOSITION CIRCUIT BLOCK	
		DIODE	
D004	8-719-911-19	DIODE 1SS119	
D005	8-719-000-06	DIODE MC921	
D102	8-719-000-06	DIODE MC921	
D104	8-719-000-12	DIODE MC931	
D106	8-719-000-12	DIODE MC931	
D108	8-719-101-32	DIODE RD2.7EL1	
D109	8-719-000-06	DIODE MC921	
D113	8-719-113-07	DIODE RD13E-B	
D150	8-719-100-38	DIODE RD6.2EB2	
D151	8-719-100-38	DIODE RD6.2EB2	
D204	8-719-000-12	DIODE MC931	
D301	8-719-911-19	DIODE 1SS119	
D302	8-719-911-19	DIODE 1SS119	
D305	8-719-911-19	DIODE 1SS119	
D306	8-719-911-19	DIODE 1SS119	
D308	8-719-911-19	DIODE 1SS119	
D309	8-719-911-19	DIODE 1SS119	
D310	8-719-911-19	DIODE 1SS119	
D311	8-719-911-19	DIODE 1SS119	
D411	8-719-000-06	DIODE MC921	
D501	8-719-911-19	DIODE 1SS119	
D502	8-719-911-19	DIODE 1SS119	
		FILTER	
FL301	1-235-396-21	BPF	
FL302	1-235-395-21	BPF	
		IC	
IC101	8-759-913-87	IC MB88551-159N	
IC102	8-752-320-11	IC CXK1001P	
IC103	8-759-913-67	IC MB3763P	
IC104	8-759-913-67	IC MB3763P	
IC105	8-759-240-30	IC TC4030BP	
IC107	8-759-103-93	IC UPC393C	
IC108	8-759-200-07	IC TC40H157P	
IC109	8-759-602-64	IC M50761-692P	
IC110	8-759-240-11	IC TC4011BP	
IC111	8-759-045-38	IC MC14538BCP	
IC112	8-759-700-81	IC NJM555D	
IC201	8-752-013-50	IC CX20135	
IC202	8-759-200-56	IC TC4526BP	
IC203	8-759-135-80	IC UPC358C	
IC204	8-759-240-66	IC TC4066BP	
IC301	8-752-203-20	IC CX22032	
IC302	1-807-153-11	IC (DIFFERENTIAL DETECTOR)	
IC303	8-759-602-76	IC M50763-633SP	
IC304	8-759-940-94	IC MSM4094RS	
IC305	8-759-200-07	IC TC40H157P	
IC306	8-759-240-53	IC TC4053BP	
IC401	8-759-135-80	IC UPC358C	
IC402	8-759-045-38	IC MC14538BCP	
IC404	8-759-240-66	IC TC4066BP	
IC501	8-759-045-38	IC MC14538BCP	
		JACK	
J118	1-507-562-00	JACK (CONTROL S IN)	
		COIL	
L101	1-407-169-XX	MICRO INDUCTOR 100UH	
L601	1-408-411-00	MICRO INDUCTOR 15UH (AEP MODEL)	
		IC LINK	
PS100⚠	1-532-605-11	LINK, IC (ICP-N10)	
PS101⚠	1-532-727-11	LINK, IC (ICP-N5)	
PS102⚠	1-532-605-11	LINK, IC (ICP-N10)	
		TRANSISTOR	
Q001	8-729-900-33	TRANSISTOR DTC144EF	
Q003	8-729-245-83	TRANSISTOR 2SC2458	
Q009	8-729-900-89	TRANSISTOR DTC144ES	
Q010	8-729-900-89	TRANSISTOR DTC144ES	
Q101	8-729-177-32	TRANSISTOR 2SD773	
Q103	8-729-900-89	TRANSISTOR DTC144ES	
Q104	8-729-245-83	TRANSISTOR 2SC2458	
Q105	8-729-245-83	TRANSISTOR 2SC2458	
Q106	8-729-245-83	TRANSISTOR 2SC2458	
Q107	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q111	8-729-900-63	TRANSISTOR DTA124ES	
Q112	8-729-900-80	TRANSISTOR DTC114ES	
Q113	8-729-900-63	TRANSISTOR DTA124ES	
Q114	8-729-245-83	TRANSISTOR 2SC2458	
Q116	8-729-245-83	TRANSISTOR 2SC2458	
Q117	8-729-245-83	TRANSISTOR 2SC2458	
Q118	8-729-245-83	TRANSISTOR 2SC2458	
Q122	8-729-900-89	TRANSISTOR DTC144ES	
Q130	8-729-900-80	TRANSISTOR DTC114ES	
Q131	8-729-900-36	TRANSISTOR DTC124ES	
Q135	8-729-245-83	TRANSISTOR 2SC2458	
Q137	8-729-900-89	TRANSISTOR DTC144ES	
Q150	8-729-245-83	TRANSISTOR 2SC2458	
Q151	8-729-900-89	TRANSISTOR DTC144ES	
Q201	8-729-245-83	TRANSISTOR 2SC2458	
Q202	8-729-245-83	TRANSISTOR 2SC2458	
Q203	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q204	8-729-245-83	TRANSISTOR 2SC2458	
Q205	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q206	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q207	8-729-900-89	TRANSISTOR DTC144ES	
Q211	8-729-900-65	TRANSISTOR DTA144ES	
Q212	8-729-900-65	TRANSISTOR DTA144ES	
Q213	8-729-900-89	TRANSISTOR DTC144ES	
Q214	8-729-900-89	TRANSISTOR DTC144ES	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
Q215	8-729-900-65	TRANSISTOR DTA144ES				
Q219	8-729-900-89	TRANSISTOR DTC144ES				
Q221	8-729-900-89	TRANSISTOR DTC144ES				
Q301	8-729-115-30	TRANSISTOR 2SK105A				
Q302	8-729-115-30	TRANSISTOR 2SK105A				
Q303	8-729-115-30	TRANSISTOR 2SK105A				
Q304	8-729-115-30	TRANSISTOR 2SK105A				
Q307	8-729-115-30	TRANSISTOR 2SK105A				
Q401	8-729-900-89	TRANSISTOR DTC144ES				
Q402	8-729-900-89	TRANSISTOR DTC144ES				
		RESISTOR				
R002	1-249-429-11	CARBON	10K	5%	1/6W	
R003	1-247-895-00	CARBON	470K	5%	1/6W	
R008	1-247-847-00	CARBON	4.7K	5%	1/6W	
R009	1-249-441-11	CARBON	100K	5%	1/6W	
R010	1-247-831-00	CARBON	1K	5%	1/6W	
R028	1-247-899-00	CARBON	680K	5%	1/6W	
R099	1-247-831-00	CARBON	1K	5%	1/6W	
R100	1-249-429-11	CARBON	10K	5%	1/6W	
R101	1-249-437-11	CARBON	47K	5%	1/6W	
R102	1-247-859-00	CARBON	15K	5%	1/6W	
R103	1-247-853-00	CARBON	8.2K	5%	1/6W	
R104	1-247-847-00	CARBON	4.7K	5%	1/6W	
R105	1-247-843-00	CARBON	3.3K	5%	1/6W	
R106	1-249-421-11	CARBON	2.2K	5%	1/6W	
R107	1-247-837-00	CARBON	1.8K	5%	1/6W	
R108	1-247-857-00	CARBON	12K	5%	1/6W	
R109	1-247-831-00	CARBON	1K	5%	1/6W	
R110	1-249-429-11	CARBON	10K	5%	1/6W	
R119	1-249-429-11	CARBON	10K	5%	1/6W	
R120	1-247-823-00	CARBON	470	5%	1/6W	
R121	1-249-429-11	CARBON	10K	5%	1/6W	
R130	1-249-437-11	CARBON	47K	5%	1/6W	
R131	1-247-831-00	CARBON	1K	5%	1/6W	
R132	1-247-831-00	CARBON	1K	5%	1/6W	
R135	1-247-843-00	CARBON	3.3K	5%	1/6W	
R136	1-249-429-11	CARBON	10K	5%	1/6W	
R138	1-249-429-11	CARBON	10K	5%	1/6W	
R139	1-249-429-11	CARBON	10K	5%	1/6W	
R145	1-247-857-00	CARBON	12K	5%	1/6W	
R155	1-247-879-00	CARBON	100K	5%	1/6W	
R165	1-249-437-11	CARBON	47K	5%	1/6W	
R166	1-249-429-11	CARBON	10K	5%	1/6W	
R167	1-249-437-11	CARBON	47K	5%	1/6W	
R168	1-249-437-11	CARBON	47K	5%	1/6W	
R169	1-249-437-11	CARBON	47K	5%	1/6W	
R172	1-249-429-11	CARBON	10K	5%	1/6W	
R173	1-247-831-00	CARBON	1K	5%	1/6W	
R174	1-249-437-11	CARBON	47K	5%	1/6W	
R175	1-247-879-00	CARBON	100K	5%	1/6W	
R176	1-247-847-00	CARBON	4.7K	5%	1/6W	
R184	1-247-831-00	CARBON	1K	5%	1/6W	
R185	1-247-831-00	CARBON	1K	5%	1/6W	

Ref.No	Part No.	Description				Remark
R186	1-247-831-00	CARBON	1K	5%	1/6W	
R187	1-247-831-00	CARBON	1K	5%	1/6W	
R188	1-247-831-00	CARBON	1K	5%	1/6W	
R189	1-247-831-00	CARBON	1K	5%	1/6W	
R190	1-247-831-00	CARBON	1K	5%	1/6W	
R191	1-247-831-00	CARBON	1K	5%	1/6W	
R192	1-247-831-00	CARBON	1K	5%	1/6W	
R193	1-247-831-00	CARBON	1K	5%	1/6W	
R194	1-247-831-00	CARBON	1K	5%	1/6W	
R202	1-247-843-00	CARBON	3.3K	5%	1/6W	
R203	1-249-434-11	CARBON	27K	5%	1/6W	
R206	1-247-853-00	CARBON	8.2K	5%	1/6W	
R207	1-247-849-00	CARBON	5.6K	5%	1/6W	
R208	1-247-849-00	CARBON	5.6K	5%	1/6W	
R209	1-247-863-00	CARBON	22K	5%	1/6W	
R210	1-247-873-00	CARBON	56K	5%	1/6W	
R211	1-247-869-00	CARBON	39K	5%	1/6W	
R212	1-247-867-00	CARBON	33K	5%	1/6W	
R213	1-247-843-00	CARBON	3.3K	5%	1/6W	
R214	1-247-861-00	CARBON	18K	5%	1/6W	
R232	1-247-869-00	CARBON	39K	5%	1/6W	
R235	1-249-434-11	CARBON	27K	5%	1/6W	
R236	1-247-879-00	CARBON	100K	5%	1/6W	
R242	1-247-879-00	CARBON	100K	5%	1/6W	
R243	1-249-429-11	CARBON	10K	5%	1/6W	
R246	1-249-437-11	CARBON	47K	5%	1/6W	
R260	1-249-429-11	CARBON	10K	5%	1/6W	
R272	1-249-437-11	CARBON	47K	5%	1/6W	
R275	1-249-429-11	CARBON	10K	5%	1/6W	
R280	1-247-849-00	CARBON	5.6K	5%	1/6W	
R284	1-247-847-00	CARBON	4.7K	5%	1/6W	
R285	1-247-899-00	CARBON	680K	5%	1/6W	
R286	1-249-437-11	CARBON	47K	5%	1/6W	
R294	1-247-845-00	CARBON	3.9K	5%	1/6W	
R295	1-247-859-00	CARBON	15K	5%	1/6W	
R301	1-249-437-11	CARBON	47K	5%	1/6W	
R302	1-249-429-11	CARBON	10K	5%	1/6W	
R303	1-249-429-11	CARBON	10K	5%	1/6W	
R304	1-249-437-11	CARBON	47K	5%	1/6W	
R307	1-249-429-11	CARBON	10K	5%	1/6W	
R310	1-247-879-00	CARBON	100K	5%	1/6W	
R311	1-247-879-00	CARBON	100K	5%	1/6W	
R312	1-249-429-11	CARBON	10K	5%	1/6W	(AEP MODEL)
R313	1-247-873-00	CARBON	56K	5%	1/6W	(AEP MODEL)
R318	1-247-863-00	CARBON	22K	5%	1/6W	
R319	1-247-857-00	CARBON	12K	5%	1/6W	
R327	1-247-891-00	CARBON	330K	5%	1/6W	
R328	1-247-867-00	CARBON	33K	5%	1/6W	
R329	1-247-891-00	CARBON	330K	5%	1/6W	
R350	1-247-879-00	CARBON	100K	5%	1/6W	
R351	1-247-863-00	CARBON	22K	5%	1/6W	

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description				Remark
R404	1-249-437-11	CARBON	47K	5%	1/6W	
R408	1-249-437-11	CARBON	47K	5%	1/6W	
R409	1-247-893-00	CARBON	390K	5%	1/6W	
R410	1-247-895-00	CARBON	470K	5%	1/6W	
R501	1-247-863-00	CARBON	22K	5%	1/6W	
R502	1-249-429-11	CARBON	10K	5%	1/6W	
R503	1-247-881-00	CARBON	120K	5%	1/6W	
R504	1-247-831-00	CARBON	1K	5%	1/6W	
R604	1-247-807-00	CARBON	100	5%	1/6W	
R950	1-244-429-11	CARBON	10K	5%	1/6W	
		VARIABLE RESISTOR				
RV201	1-228-995-00	RES, ADJ, METAL GLAZE 22K				
RV202	1-228-995-00	RES, ADJ, METAL GLAZE 22K				
RV203	1-228-998-00	RES, ADJ, METAL GLAZE 220K				
RV301	1-228-996-00	RES, ADJ, METAL GLAZE 47K				
RV401	1-228-997-00	RES, ADJ, METAL GLAZE 100K				
RV402	1-228-997-00	RES, ADJ, METAL GLAZE 100K				
RV501	1-228-997-00	RES, ADJ, METAL GLAZE 100K				
RV601	1-230-660-11	RES, VAR, CARBON 1K				
		SWITCH				
S101	1-570-157-11	SWITCH, SLIDE (AFT)				
S102	1-554-174-00	SWITCH, KEY BOARD (SEARCH)				
S103	1-554-174-00	SWITCH, KEY BOARD (TUNING)				
S104	1-554-174-00	SWITCH, KEY BOARD (TUNING)				
S105	1-554-174-00	SWITCH, KEY BOARD (CLEAR)				
S109	1-570-157-11	SWITCH, SLIDE SLIDE (STEREO)(AEP MODEL)				
		CRYSTAL				
X101	1-567-346-11	OSCILLATOR, CERAMIC				
X102	1-527-965-00	OSCILLATOR, CERAMIC				

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*A-7060-157-A TA-28A BOARD, COMPLETE (AEP MODEL)
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⚠1-463-577-31 TUNER, ET (BT-883AD)

CAPACITOR

C001	1-102-531-00	CERAMIC	150PF	5%	50V
C002	1-102-530-00	CERAMIC	120PF	5%	50V
C003	1-102-513-00	CERAMIC	18PF	5%	50V
C004	1-102-518-00	CERAMIC	33PF	5%	50V
C005	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C006	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C007	1-123-307-00	ELECT	100MF	20%	10V
C008	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C009	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C010	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C011	1-123-379-00	ELECT	0.47MF	20%	50V
C012	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C013	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C014	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C015	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C016	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C017	1-123-318-00	ELECT	33MF	20%	16V
C018	1-102-529-00	CERAMIC	100PF	5%	50V
C019	1-102-937-00	CERAMIC	4PF	0.25PF	50V
C020	1-102-518-00	CERAMIC	33PF	5%	50V
C021	1-102-529-00	CERAMIC	100PF	5%	50V
C022	1-102-937-00	CERAMIC	4PF	0.25PF	50V
C023	1-102-518-00	CERAMIC	33PF	5%	50V
C024	1-102-106-00	CERAMIC	100PF	10%	50V
C025	1-123-307-00	ELECT	100MF	20%	10V
C026	1-102-760-00	CERAMIC	68PF	5%	50V
C027	1-123-369-00	ELECT	4.7MF	20%	25V
C028	1-123-379-00	ELECT	0.47MF	20%	50V
C029	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C030	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C031	1-123-286-00	ELECT	0.33MF	20%	50V
C032	1-102-108-00	CERAMIC	150PF	10%	50V
C033	1-130-014-00	FILM	470PF	5%	50V
C034	1-123-379-00	ELECT	0.47MF	20%	50V
C035	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C036	1-123-318-00	ELECT	33MF	20%	16V
C037	1-101-004-00	CERAMIC	0.01MF		50V
C038	1-101-004-00	CERAMIC	0.01MF		50V
C039	1-102-525-00	CERAMIC	68PF	5%	50V
C040	1-102-816-00	CERAMIC	120PF	5%	50V
C041	1-130-072-00	FILM	0.022MF	2%	100V
C042	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C043	1-106-184-00	MYLAR	0.0033MF	5%	50V
C044	1-106-184-00	MYLAR	0.0033MF	5%	50V
C045	1-123-356-00	ELECT	10MF	20%	16V
C046	1-123-306-00	ELECT	47MF	20%	10V
C047	1-123-306-00	ELECT	47MF	20%	10V
C048	1-106-184-00	MYLAR	0.0033MF	5%	50V
C049	1-106-184-00	MYLAR	0.0033MF	5%	50V
C050	1-123-379-00	ELECT	0.47MF	20%	50V
C051	1-123-319-51	ELECT	47MF	20%	16V
C052	1-101-004-00	CERAMIC	0.01MF		50V
C053	1-123-356-00	ELECT	10MF	20%	16V
C054	1-101-004-00	CERAMIC	0.01MF		50V
C055	1-101-004-00	CERAMIC	0.01MF		50V
C056	1-123-356-00	ELECT	10MF	20%	16V
C057	1-123-318-00	ELECT	33MF	20%	16V
C058	1-123-379-00	ELECT	0.47MF	20%	50V
C059	1-108-579-00	MYLAR	0.01MF	5%	50V
C060	1-108-579-00	MYLAR	0.01MF	5%	50V
C061	1-123-356-00	ELECT	10MF	20%	16V
C063	1-161-025-00	CERAMIC	0.1MF	10%	25V
C064	1-123-330-00	ELECT	22MF	20%	16V
C065	1-123-356-00	ELECT	10MF	20%	16V
C066	1-123-318-00	ELECT	33MF	20%	16V
C067	1-123-380-00	ELECT	1MF	20%	50V
C068	1-123-380-00	ELECT	1MF	20%	50V

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
C069	1-123-380-00	ELECT	1MF	20%	50V	
C070	1-123-369-00	ELECT	4.7MF	20%	25V	
C071	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C072	1-108-599-00	MYLAR	0.068MF	5%	50V	
C073	1-108-599-00	MYLAR	0.068MF	5%	50V	
C074	1-123-318-00	ELECT	33MF	20%	16V	
C075	1-123-356-00	ELECT	10MF	20%	16V	
C076	1-123-356-00	ELECT	10MF	20%	50V	
C077	1-108-603-00	MYLAR	0.1MF	5%	50V	
C078	1-102-106-00	CERAMIC	100PF	10%	50V	
C079	1-123-318-00	ELECT	33MF	20%	16V	
C080	1-123-319-51	ELECT	47MF	20%	16V	
C081	1-108-603-00	MYLAR	0.1MF	5%	50V	
C082	1-161-013-00	CERAMIC	0.01MF	10%	25V	
C083	1-123-356-00	ELECT	10MF	20%	16V	
C084	1-123-356-00	ELECT	10MF	20%	16V	
C085	1-102-963-00	CERAMIC	33PF	5%	50V	
C086	1-123-356-00	ELECT	10MF	20%	16V	
C087	1-101-004-00	CERAMIC	0.01MF		50V	
C088	1-108-579-00	MYLAR	0.01MF	5%	50V	
C089	1-123-369-00	ELECT	4.7MF	20%	25V	
C090	1-123-369-00	ELECT	4.7MF	20%	25V	
C091	1-123-369-00	ELECT	4.7MF	20%	25V	
C092	1-102-115-00	CERAMIC	560PF	10%	50V	
C093	1-161-059-00	CERAMIC	0.047MF	10%	25V	
C094	1-101-059-21	CERAMIC	510PF	5%	50V	
C095	1-123-381-00	ELECT	2.2MF	20%	50V	
C096	1-106-172-00	MYLAR	0.001MF	5%	50V	
C097	1-102-113-00	CERAMIC	390PF	10%	50V	
C098	1-106-172-00	MYLAR	0.001MF	5%	50V	
C099	1-102-117-00	CERAMIC	820PF	10%	50V	
C101	1-123-318-00	ELECT	33MF	20%	16V	
C102	1-102-961-00	CERAMIC	27PF	5%	50V	
C103	1-123-356-00	ELECT	10MF	20%	16V	
C104	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C105	1-102-520-00	CERAMIC	39PF	5%	50V	
C106	1-123-356-00	ELECT	10MF	20%	16V	
C107	1-102-116-00	CERAMIC	680PF	10%	50V	
C108	1-123-319-51	ELECT	47MF	20%	16V	
C109	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C110	1-161-025-00	CERAMIC	0.1MF	10%	25V	
C111	1-102-112-00	CERAMIC	330PF	10%	50V	
C112	1-108-603-00	MYLAR	0.1MF	5%	50V	
C113	1-106-176-00	MYLAR	0.0015MF	5%	50V	
C114	1-123-318-00	ELECT	33MF	20%	16V	
C115	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C116	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C117	1-102-953-00	CERAMIC	18PF	5%	50V	

DISCRIMINATOR

CD001	1-404-501-00	DISCRIMINATOR, CERAMIC

Ref.No	Part No.	Description	Remark
		FILTER	
CF001	1-527-840-00	FILTER, CERAMIC	
CF002	1-527-839-00	FILTER, CERAMIC	
		CONNECTOR	
CN001	*1-560-890-00	PIN, CONNECTOR 2P	
CN007	*1-560-890-00	PIN, CONNECTOR 2P	
CN008	*1-560-890-00	PIN, CONNECTOR 2P	
CN009	*1-560-896-00	PIN, CONNECTOR 8P	
CN010	*1-560-893-00	PIN, CONNECTOR 5P	
		TRIMMER	
CT001	1-404-134-00	TRAP, CERAMIC (5.5MHZ)	
		DIODE	
D001	8-719-911-19	DIODE 1SS119	
D002	8-719-911-19	DIODE 1SS119	
D003	8-719-911-19	DIODE 1SS119	
D004	8-719-911-19	DIODE 1SS119	
D005	8-719-911-19	DIODE 1SS119	
D006	8-719-911-19	DIODE 1SS119	
D007	8-719-911-19	DIODE 1SS119	
D008	8-719-911-19	DIODE 1SS119	
D010	8-719-911-19	DIODE 1SS119	
D011	8-719-911-19	DIODE 1SS119	
D012	8-719-911-19	DIODE 1SS119	
D013	8-719-911-19	DIODE 1SS119	
D014	8-719-911-19	DIODE 1SS119	
D015	8-719-911-19	DIODE 1SS119	
		IC	
IC001	8-759-276-07	IC TA7607AP	
IC002	8-759-909-54	IC TDA2546A	
IC003	8-759-007-54	IC TDA4940	
IC004	8-759-007-55	IC TDA4944	
IC005	8-759-602-16	IC M54572L	
IC006	8-759-157-40	IC UPC574J	
IC007	8-759-729-03	IC NJM2903D	
IC008	8-759-040-46	IC MC14046BCP	
IC009	8-759-201-47	IC TA7357AP	
IC010	8-759-040-46	IC MC14046BCP	
		COIL	
L001	1-404-476-00	COIL, IF	
L002	1-404-476-00	COIL, IF	
L003	1-408-399-00	MICRO INDUCTOR 1.5UH	
L004	1-408-406-00	MICRO INDUCTOR 5.6UH	
L005	1-404-521-11	VIFT	
L006	1-404-521-11	VIFT	
L007	1-408-409-00	MICRO INDUCTOR 10UH	
L008	1-408-408-00	MICRO INDUCTOR 8.2UH	
L009	1-408-428-00	MICRO INDUCTOR 390UH	
L010	1-404-477-00	COIL, IF	

When indicating parts by reference number, please include the board name.

TA-28A

Ref.No	Part No.	Description	Remark
L011	1-408-406-00	MICRO INDUCTOR 5.6UH	
L012	1-404-493-00	COIL	
L014	1-408-429-00	MICRO INDUCTOR 470UH	

TRANSISTOR

Q001	8-729-105-47	TRANSISTOR 2SC2026	
Q002	8-729-117-54	TRANSISTOR 2SA1175	
Q003	8-729-245-83	TRANSISTOR 2SC2458	
Q004	8-729-245-83	TRANSISTOR 2SC2458	
Q005	8-729-900-89	TRANSISTOR DTC144ES	
Q006	8-729-900-89	TRANSISTOR DTC144ES	
Q007	8-729-900-89	TRANSISTOR DTC144ES	
Q008	8-729-900-36	TRANSISTOR DTC124ES	
Q009	8-729-900-36	TRANSISTOR DTC124ES	
Q010	8-729-245-83	TRANSISTOR 2SC2458	
Q011	8-729-245-83	TRANSISTOR 2SC2458	
Q012	8-729-245-83	TRANSISTOR 2SC2458	
Q013	8-729-245-83	TRANSISTOR 2SC2458	
Q014	8-729-245-83	TRANSISTOR 2SC2458	
Q015	8-729-245-83	TRANSISTOR 2SC2458	
Q016	8-729-245-83	TRANSISTOR 2SC2458	
Q017	8-729-603-30	TRANSISTOR 2SC403SP-3	
Q018	8-729-245-83	TRANSISTOR 2SC2458	
Q019	8-729-245-83	TRANSISTOR 2SC2458	
Q020	8-729-900-36	TRANSISTOR DTC124ES	
Q021	8-729-113-33	TRANSISTOR 2SB733-4	
Q022	8-729-900-89	TRANSISTOR DTC144ES	
Q023	8-729-117-54	TRANSISTOR 2SA1175	
Q024	8-729-245-83	TRANSISTOR 2SC2458	
Q025	8-729-245-83	TRANSISTOR 2SC2458	
Q026	8-729-117-54	TRANSISTOR 2SA1175	
Q027	8-729-900-89	TRANSISTOR DTC144ES	
Q028	8-729-900-89	TRANSISTOR DTC144ES	
Q029	8-729-900-89	TRANSISTOR DTC144ES	
Q030	8-729-900-89	TRANSISTOR DTC144ES	

RESISTOR

R001	1-247-847-00	CARBON	4.7K	5%	1/6W	
R002	1-247-825-00	CARBON	560	5%	1/6W	
R003	1-247-823-00	CARBON	470	5%	1/6W	
R004	1-247-847-00	CARBON	4.7K	5%	1/6W	
R005	1-247-815-00	CARBON	220	5%	1/6W	
R006	1-247-837-00	CARBON	1.8K	5%	1/6W	
R007	1-247-901-00	CARBON	820K	5%	1/6W	
R008	1-249-421-11	CARBON	2.2K	5%	1/6W	
R009	1-247-815-00	CARBON	220	5%	1/6W	
R010	1-247-831-00	CARBON	1K	5%	1/6W	
R011	1-247-823-00	CARBON	470	5%	1/6W	
R012	1-247-833-00	CARBON	1.2K	5%	1/6W	
R013	1-247-831-00	CARBON	1K	5%	1/6W	
R014	1-247-831-00	CARBON	1K	5%	1/6W	
R015	1-247-831-00	CARBON	1K	5%	1/6W	
R016	1-247-831-00	CARBON	1K	5%	1/6W	
R017	1-247-819-00	CARBON	330	5%	1/6W	
R018	1-247-849-00	CARBON	5.6K	5%	1/6W	
R019	1-247-829-00	CARBON	820	5%	1/6W	
R020	1-247-829-00	CARBON	820	5%	1/6W	
R021	1-247-829-00	CARBON	820	5%	1/6W	
R022	1-247-819-00	CARBON	330	5%	1/6W	
R023	1-247-821-00	CARBON	390	5%	1/6W	
R024	1-247-845-00	CARBON	3.9K	5%	1/6W	
R025	1-247-827-00	CARBON	680	5%	1/6W	
R026	1-247-869-00	CARBON	39K	5%	1/6W	
R027	1-247-843-00	CARBON	3.3K	5%	1/6W	
R028	1-247-867-00	CARBON	33K	5%	1/6W	
R029	1-247-867-00	CARBON	33K	5%	1/6W	
R030	1-247-885-00	CARBON	180K	5%	1/6W	
R031	1-249-429-11	CARBON	10K	5%	1/6W	
R032	1-247-887-00	CARBON	220K	5%	1/6W	
R033	1-247-851-00	CARBON	6.8K	5%	1/6W	
R034	1-249-437-11	CARBON	47K	5%	1/6W	
R035	1-249-421-11	CARBON	2.2K	5%	1/6W	
R036	1-247-859-00	CARBON	15K	5%	1/6W	
R037	1-247-831-00	CARBON	1K	5%	1/6W	
R038	1-249-429-11	CARBON	10K	5%	1/6W	
R039	1-247-831-00	CARBON	1K	5%	1/6W	
R040	1-247-847-00	CARBON	4.7K	5%	1/6W	
R041	1-247-847-00	CARBON	4.7K	5%	1/6W	
R042	1-247-847-00	CARBON	4.7K	5%	1/6W	
R043	1-247-847-00	CARBON	4.7K	5%	1/6W	
R044	1-247-863-00	CARBON	22K	5%	1/6W	
R045	1-247-877-00	CARBON	82K	5%	1/6W	
R046	1-247-859-00	CARBON	15K	5%	1/6W	
R047	1-247-857-00	CARBON	12K	5%	1/6W	
R048	1-247-859-00	CARBON	15K	5%	1/6W	
R049	1-247-843-00	CARBON	3.3K	5%	1/6W	
R050	1-247-891-00	CARBON	330K	5%	1/6W	
R051	1-249-421-11	CARBON	2.2K	5%	1/6W	
R052	1-247-877-00	CARBON	82K	5%	1/6W	
R053	1-247-881-00	CARBON	120K	5%	1/6W	
R054	1-247-863-00	CARBON	22K	5%	1/6W	
R055	1-249-421-11	CARBON	2.2K	5%	1/6W	
R056	1-247-895-00	CARBON	470K	5%	1/6W	
R057	1-247-877-00	CARBON	82K	5%	1/6W	
R058	1-247-857-00	CARBON	12K	5%	1/6W	
R059	⚠ 1-247-720-51	CARBON	3.9K	5%	1/4W	F
R060	1-247-863-00	CARBON	22K	5%	1/6W	
R061	1-247-863-00	CARBON	22K	5%	1/6W	
R062	1-247-863-00	CARBON	22K	5%	1/6W	
R063	1-247-863-00	CARBON	22K	5%	1/6W	
R064	1-247-775-00	CARBON	4.7	5%	1/6W	
R065	1-249-421-11	CARBON	2.2K	5%	1/6W	
R066	1-247-847-00	CARBON	4.7K	5%	1/6W	
R067	1-247-831-00	CARBON	1K	5%	1/6W	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R068	1-247-841-00	CARBON	2.7K	5%	1/6W	
R069	1-247-831-00	CARBON	1K	5%	1/6W	
R070	1-249-419-11	CARBON	1.5K	5%	1/6W	
R071	1-247-831-00	CARBON	1K	5%	1/6W	
R072	1-247-879-00	CARBON	100K	5%	1/6W	
R073	1-247-879-00	CARBON	100K	5%	1/6W	
R074	1-247-899-00	CARBON	680K	5%	1/6W	
R075	1-247-867-00	CARBON	33K	5%	1/6W	
R076	1-249-429-11	CARBON	10K	5%	1/6W	
R077	1-247-847-00	CARBON	4.7K	5%	1/6W	
R078	1-247-843-00	CARBON	3.3K	5%	1/6W	
R079	1-249-429-11	CARBON	10K	5%	1/6W	
R080	1-247-883-00	CARBON	150K	5%	1/6W	
R081	1-247-887-00	CARBON	220K	5%	1/6W	
R082	1-247-843-00	CARBON	3.3K	5%	1/6W	
R083	1-247-863-00	CARBON	22K	5%	1/6W	
R084	1-247-863-00	CARBON	22K	5%	1/6W	
R085	1-247-783-00	CARBON	10	5%	1/6W	
R086	1-247-867-00	CARBON	33K	5%	1/6W	
R088	1-247-857-00	CARBON	12K	5%	1/6W	
R089	1-249-429-11	CARBON	10K	5%	1/6W	
R090	1-249-429-11	CARBON	10K	5%	1/6W	
R091	1-247-847-00	CARBON	4.7K	5%	1/6W	
R092	1-249-429-11	CARBON	10K	5%	1/6W	
R093	1-247-845-00	CARBON	3.9K	5%	1/6W	
R094	1-247-845-00	CARBON	3.9K	5%	1/6W	
R095	1-247-837-00	CARBON	1.8K	5%	1/6W	
R098	1-247-837-00	CARBON	1.8K	5%	1/6W	
R099	1-247-833-00	CARBON	1.2K	5%	1/6W	
R100	1-247-829-00	CARBON	820	5%	1/6W	
R101	1-249-429-11	CARBON	10K	5%	1/6W	
R102	1-249-429-11	CARBON	10K	5%	1/6W	
R103	1-247-879-00	CARBON	100K	5%	1/6W	
R104	1-247-859-00	CARBON	15K	5%	1/6W	
R105	1-247-879-00	CARBON	100K	5%	1/6W	
R106	1-247-863-00	CARBON	22K	5%	1/6W	
R107	1-247-803-00	CARBON	68	5%	1/6W	
R109	1-247-831-00	CARBON	1K	5%	1/6W	
R110	1-247-875-00	CARBON	68K	5%	1/6W	
R111	1-247-903-00	CARBON	1M	5%	1/6W	
R112	1-247-863-00	CARBON	22K	5%	1/6W	
R113	1-247-887-00	CARBON	220K	5%	1/6W	
R114	1-247-879-00	CARBON	100K	5%	1/6W	
R115	1-247-867-00	CARBON	33K	5%	1/6W	
R116	1-247-863-00	CARBON	22K	5%	1/6W	
R117	1-249-434-11	CARBON	27K	5%	1/6W	
R118	1-247-867-00	CARBON	33K	5%	1/6W	
R119	1-247-843-00	CARBON	3.3K	5%	1/6W	

VARIABLE RESISTOR

RV001	1-228-993-00	RES, ADJ, CARBON 4.7K
RV002	1-228-996-00	RES, ADJ, CARBON 47K
RV003	1-228-998-00	RES, ADJ, CARBON 220K

Ref.No	Part No.	Description				Remark
		FILTER				
SWF001	1-404-438-00	FILTER, SAW				
**********						
	*A-7060-161-A	TA-29C BOARD, COMPLETE (UK MODEL)				
		**********				
⚠	1-463-593-21	TUNER, ET (BT-882AD)				
	*4-336-029-00	PLATE, SHIELD				
		CAPACITOR				
C001	1-102-531-00	CERAMIC	150PF	5%	50V	
C002	1-102-530-00	CERAMIC	120PF	5%	50V	
C003	1-102-518-00	CERAMIC	33PF	5%	50V	
C004	1-102-851-00	CERAMIC	15PF	5%	50V	
C005	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C006	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C007	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C008	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C009	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C010	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C011	1-123-379-00	ELECT	0.47MF	20%	50V	
C012	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C013	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C014	1-123-318-00	ELECT	33MF	20%	50V	
C015	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C016	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C017	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C018	1-102-529-00	CERAMIC	100PF	5%	50V	
C019	1-102-504-00	CERAMIC	4PF	0.25PF	50V	
C020	1-102-518-00	CERAMIC	33PF	5%	50V	
C021	1-102-504-00	CERAMIC	4PF	0.25PF	50V	
C022	1-102-529-00	CERAMIC	100PF	5%	50V	
C023	1-102-518-00	CERAMIC	33PF	5%	50V	
C025	1-123-307-00	ELECT	100MF	20%	10V	
C026	1-102-108-00	CERAMIC	150PF	10%	50V	
C027	1-123-369-00	ELECT	4.7MF	20%	25V	
C028	1-102-959-00	CERAMIC	22PF	5%	50V	
C029	1-102-959-00	CERAMIC	22PF	5%	50V	
C030	1-101-004-00	CERAMIC	0.01MF		50V	
C031	1-101-004-00	CERAMIC	0.01MF		50V	
C032	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C033	1-102-959-00	CERAMIC	22PF	5%	50V	
C034	1-101-004-00	CERAMIC	0.01MF		50V	
C035	1-123-318-00	ELECT	33MF	20%	16V	
C036	1-108-807-00	MYLAR	0.018MF	5%	50V	
C037	1-123-356-00	ELECT	10MF	20%	16V	
C038	1-108-599-00	MYLAR	0.068MF	5%	50V	
C039	1-108-599-00	MYLAR	0.068MF	5%	50V	
C040	1-102-963-00	CERAMIC	33PF	5%	50V	
C041	1-123-318-00	ELECT	33MF	20%	16V	
C042	1-102-125-00	CERAMIC	0.0047MF	10%	50V	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

TA-29C

Ref.No	Part No.	Description			Remark
C043	1-123-369-00	ELECT	4.7MF	20%	25V
C047	1-123-318-00	ELECT	33MF	20%	16V
C048	1-123-330-00	ELECT	22MF	20%	16V
C050	1-102-106-00	CERAMIC	100PF	10%	50V
C051	1-108-603-00	MYLAR	0.1MF	5%	50V
C052	1-123-356-00	ELECT	10MF	20%	50V
C053	1-123-332-00	ELECT	47MF	20%	16V
C054	1-123-356-00	ELECT	10MF	20%	16V
C055	1-123-318-00	ELECT	33MF	20%	16V
C056	1-123-381-00	ELECT	2.2MF	20%	50V
C057	1-102-074-00	CERAMIC	0.001MF	10%	50V
C058	1-123-356-00	ELECT	10MF	20%	16V
C059	1-123-356-00	ELECT	10MF	20%	16V
C060	1-101-004-00	CERAMIC	0.01MF		50V
C061	1-123-318-00	ELECT	33MF	20%	16V
C062	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C063	1-123-356-00	ELECT	10MF	20%	16V
C064	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C066	1-108-603-00	MYLAR	0.1MF	5%	50V
C067	1-123-307-00	ELECT	100MF	20%	10V
C068	1-123-330-00	ELECT	22MF	20%	16V
C069	1-161-025-00	CERAMIC	0.1MF	10%	25V
C070	1-101-004-00	CERAMIC	0.01MF		50V
C071	1-102-113-00	CERAMIC	390PF	10%	50V
C072	1-102-114-00	CERAMIC	470PF	10%	50V
C073	1-106-172-00	MYLAR	0.001MF	5%	50V
C074	1-123-379-00	ELECT	0.47MF	20%	50V
C075	1-123-356-00	ELECT	10MF	20%	16V
C076	1-102-112-00	CERAMIC	330PF	10%	50V
C077	1-102-520-00	CERMAIC	39PF	5%	50V

DISCRIMINATOR

CD001	1-404-407-00	DISCRIMINATOR

FILTER

CF001	1-527-262-00	CERAMIC FILTER (6.0MHZ)

CONNECTOR

CN001	*1-560-890-00	PIN, CONNECTOR 2P
CN006	*1-560-890-00	PIN, CONNECTOR 2P
CN007	*1-560-893-00	PIN, CONNECTOR 5P
CN008	*1-560-896-00	PIN, CONNECTOR 8P

TRIMMER

CT001	1-409-333-00	TRAP, CERAMIC (6.0MHZ)

DIODE

D001	8-719-911-19	DIODE 1SS119
D003	8-719-911-19	DIODE 1SS119
D005	8-719-911-19	DIODE 1SS119
D006	8-719-911-19	DIODE 1SS119
D007	8-719-911-19	DIODE 1SS119
D008	8-719-911-19	DIODE 1SS119

IC

IC002	8-759-276-07	IC TA7607AP
IC003	8-759-103-70	IC UPC1391HA
IC004	8-759-157-40	IC UPC574J
IC005	8-759-729-03	IC NJM2903D
IC006	8-759-040-46	IC MC14046BCP

COIL

L001	1-404-476-00	COIL, IF
L002	1-404-476-00	COIL, IF
L003	1-408-591-00	MICRO INDUCTOR 1UH
L004	1-408-406-00	MICRO INDUCTOR 5.6UH
L005	1-404-522-11	VIFT
L006	1-408-406-00	MICRO INDUCTOR 5.6UH
L007	1-404-521-21	VIFT
L008	1-404-521-21	VIFT
L009	1-408-408-00	MICRO INDUCTOR 8.2UH
L010	1-408-429-00	MICRO INDUCTOR 470UH
L011	1-408-409-00	MICRO INDUCTOR 10UH
L012	1-408-412-00	MICRO INDUCTOR 18UH
L013	1-408-413-00	MICRO INDUCTOR 22UH

TRANSISTOR

Q001	8-729-105-47	TRANSISTOR 2SC2026-L
Q002	8-729-117-54	TRANSISTOR 2SA1175
Q003	8-729-245-83	TRANSISTOR 2SC2458
Q004	8-729-245-83	TRANSISTOR 2SC2458
Q005	8-729-245-83	TRANSISTOR 2SC2458
Q006	8-729-603-30	TRANSISTOR 2SC403SP-3
Q007	8-729-245-83	TRANSISTOR 2SC2458
Q009	8-729-245-83	TRANSISTOR 2SC2458
Q010	8-729-117-54	TRANSISTOR 2SA1175
Q011	8-729-245-83	TRANSISTOR 2SC2458
Q012	8-729-245-83	TRANSISTOR 2SC2458
Q013	8-729-245-83	TRANSISTOR 2SC2458
Q014	8-729-245-83	TRANSISTOR 2SC2458
Q015	8-729-900-36	TRANSISTOR DTC124ES
Q016	8-729-113-32	TRANSISTOR 2SB733
Q017	8-729-900-36	TRANSISTOR DTC124ES
Q018	8-729-245-83	TRANSISTOR 2SC2458

RESISTOR

R001	1-249-429-11	CARBON	10K	5%	1/6W
R002	1-247-863-00	CARBON	22K	5%	1/6W
R003	1-247-847-00	CARBON	4.7K	5%	1/6W
R004	1-247-815-00	CARBON	220	5%	1/6W
R005	1-247-825-00	CARBON	560	5%	1/6W
R006	1-247-847-00	CARBON	4.7K	5%	1/6W
R007	1-247-823-00	CARBON	470	5%	1/6W
R008	1-247-837-00	CARBON	1.8K	5%	1/6W

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R009	1-247-901-00	CARBON	820K	5%	1/6W	
R010	1-247-833-00	CARBON	1.2K	5%	1/6W	
R011	1-247-815-00	CARBON	220	5%	1/6W	
R012	1-247-831-00	CARBON	1K	5%	1/6W	
R013	1-247-839-00	CARBON	2.2K	5%	1/6W	
R014	1-247-833-00	CARBON	1.2K	5%	1/6W	
R015	1-247-875-00	CARBON	68K	5%	1/6W	
R016	1-247-831-00	CARBON	1K	5%	1/6W	
R017	1-247-831-00	CARBON	1K	5%	1/6W	
R018	1-247-843-00	CARBON	3.3K	5%	1/6W	
R019	1-247-831-00	CARBON	1K	5%	1/6W	
R020	1-247-891-00	CARBON	330K	5%	1/6W	
R021	1-247-831-00	CARBON	1K	5%	1/6W	
R022	1-247-817-00	CARBON	270	5%	1/6W	
R023	1-247-821-00	CARBON	390	5%	1/6W	
R024	1-247-847-00	CARBON	4.7K	5%	1/6W	
R025	1-247-831-00	CARBON	1K	5%	1/6W	
R026	1-247-879-00	CARBON	100K	5%	1/6W	
R027	1-247-867-00	CARBON	33K	5%	1/6W	
R028	1-247-843-00	CARBON	3.3K	5%	1/6W	
R030	1-247-891-00	CARBON	330K	5%	1/6W	
R031	1-249-421-11	CARBON	2.2K	5%	1/6W	
R032	1-247-877-00	CARBON	82K	5%	1/6W	
R033	1-247-879-00	CARBON	100K	5%	1/6W	
R034	1-247-879-00	CARBON	100K	5%	1/6W	
R035	1-249-429-11	CARBON	10K	5%	1/6W	
R036	1-247-863-00	CARBON	22K	5%	1/6W	
R037	1-249-429-11	CARBON	10K	5%	1/6W	
R038	1-249-421-11	CARBON	2.2K	5%	1/6W	
R039	⚠ 1-247-719-51	CARBON	3.3K	5%	1/4W	F
R040	1-247-863-00	CARBON	22K	5%	1/6W	
R041	1-247-863-00	CARBON	22K	5%	1/6W	
R042	1-247-863-00	CARBON	22K	5%	1/6W	
R043	1-247-863-00	CARBON	22K	5%	1/6W	
R044	1-249-434-11	CARBON	27K	5%	1/6W	
R045	1-247-857-00	CARBON	12K	5%	1/6W	
R046	1-247-859-00	CARBON	15K	5%	1/6W	
R047	1-247-863-00	CARBON	22K	5%	1/6W	
R048	1-249-429-11	CARBON	10K	5%	1/6W	
R049	1-247-849-00	CARBON	5.6K	5%	1/6W	
R050	1-247-831-00	CARBON	1K	5%	1/6W	
R051	1-247-903-00	CARBON	1M	5%	1/6W	
R052	1-247-863-00	CARBON	22K	5%	1/6W	
R053	1-247-883-00	CARBON	150K	5%	1/6W	
R054	1-247-887-00	CARBON	220K	5%	1/6W	
R055	1-247-863-00	CARBON	22K	5%	1/6W	
R056	1-247-863-00	CARBON	22K	5%	1/6W	
R057	1-249-421-11	CARBON	2.2K	5%	1/6W	
R058	1-249-429-11	CARBON	10K	5%	1/6W	
R059	1-247-899-00	CARBON	680K	5%	1/6W	
R060	1-247-867-00	CARBON	33K	5%	1/6W	
R061	1-247-857-00	CARBON	12K	5%	1/6W	
R062	1-249-429-11	CARBON	10K	5%	1/6W	

Ref.No	Part No.	Description				Remark
R063	1-247-847-00	CARBON	4.7K	5%	1/6W	
R064	1-247-843-00	CARBON	3.3K	5%	1/6W	
R065	1-247-867-00	CARBON	33K	5%	1/6W	
R066	1-247-845-00	CARBON	3.9K	5%	1/6W	
R067	1-249-419-11	CARBON	1.5K	5%	1/6W	
R068	1-247-885-00	CARBON	180K	5%	1/6W	
R069	1-249-437-11	CARBON	47K	5%	1/6W	
R070	1-249-429-11	CARBON	10K	5%	1/6W	
R071	1-247-847-00	CARBON	4.7K	5%	1/6W	
R072	1-247-831-00	CARBON	1K	5%	1/6W	
R073	1-247-863-00	CARBON	22K	5%	1/6W	
R074	1-247-863-00	CARBON	22K	5%	1/6W	
R075	1-247-783-00	CARBON	10	5%	1/6W	
R076	1-247-831-00	CARBON	1K	5%	1/6W	
R077	1-249-419-11	CARBON	1.5K	5%	1/6W	
R078	1-247-831-00	CARBON	1K	5%	1/6W	
R079	1-247-841-00	CARBON	2.7K	5%	1/6W	
R080	1-247-837-00	CARBON	1.8K	5%	1/6W	
R081	1-247-837-00	CARBON	1.8K	5%	1/6W	
R082	1-247-775-00	CARBON	4.7	5%	1/6W	
R083	1-247-831-00	CARBON	1K	5%	1/6W	
R084	1-247-803-00	CARBON	68	5%	1/6W	
R085	1-249-421-11	CARBON	2.2K	5%	1/6W	
R086	1-249-421-11	CARBON	2.2K	5%	1/6W	
R087	1-249-434-11	CARBON	27K	5%	1/6W	

VARIABLE RESISTOR

RV001	1-228-993-00	RES, ADJ, CARBON 4.7K

FILTER

SF001	1-404-345-00	SAWF

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	*A-7060-158-A	FT-3C BOARD, COMPLETE (AEP MODEL)
	*A-7060-162-A	FT-3D BOARD, COMPLETE (UK MODEL)
		**********
	*3-689-044-01	CASE, SHIELD, IC
	*3-689-521-01	HOLDER, LED, ROUND
	*3-689-538-01	HOLDER (RIGHT),INDICATION TUBE
	*3-689-539-01	HOLDER (LEFT), INDICATION TUBE

CAPACITOR

C001	1-102-864-00	CERAMIC	5PF	0.5PF	50V
C005	1-124-258-00	ELECT	3.3MF	20%	25V
C006	1-124-255-00	ELECT	1MF	20%	50V
C007	1-124-258-00	ELECT	3.3MF	20%	25V
C008	1-102-112-00	CERAMIC	330PF	10%	50V
C010	1-161-059-00	CERAMIC	0.047MF	10%	25V
C011	1-161-055-00	CERAMIC	0.022MF	10%	25V
C012	1-161-059-00	CERAMIC	0.047MF	10%	25V
C013	1-161-059-00	CERAMIC	0.047MF	10%	25V
C014	1-161-043-00	CERAMIC	0.0022MF	10%	25V

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

FT-3C/D

Ref.No	Part No.	Description			Remark
C015	1-124-234-00	ELECT	22MF	20%	10V
C016	1-124-225-00	ELECT	100MF	20%	6.3V
		CONNECTOR			
CN002	*1-564-004-00	PIN, CONNECTOR 5P			
CN008	*1-564-010-11	PIN, CONNECTOR 11P			
CN013	*1-564-004-00	PIN, CONNECTOR 5P			
		TRIMMER			
CV001	1-141-272-00	CAP, TRIMMER			
		DIODE			
D001	8-719-100-54	DIODE RD9.1EB2			
D004	8-719-911-19	DIODE 1SS119			
D005	8-719-911-19	DIODE 1SS119 (UK MODEL)			
D006	8-719-911-19	DIODE 1SS119 (UK MODEL)			
D007	8-719-911-19	DIODE 1SS119 (UK MODEL)			
D016	8-719-901-66	DIODE LT-9200N			
D017	8-719-901-66	DIODE LT-9200N			
D018	8-719-901-66	DIODE LT-9200N			
D019	8-719-901-66	DIODE LT-9200N			
D020	8-719-901-66	DIODE LT-9200N			
D021	8-719-901-66	DIODE LT-9200N			
D027	8-719-901-66	DIODE LT-9200N			
D028	8-719-901-66	DIODE LT-9200N			
D029	8-719-901-66	DIODE LT-9200N			
D031	8-719-812-31	DIODE TLR123			
D032	8-719-812-31	DIODE TLR123			
		INDICATOR TUBE			
FL001	1-519-350-11	INDICATOR TUBE, FLUORESCENT			
		IC			
IC001	8-759-103-31	IC UPD7519HG-553-12			
IC002	8-759-103-32	IC UPD7519HG-552-12			
IC003	8-759-201-61	IC TC40H004F			
IC004	8-759-100-93	IC UPC393G2			
IC005	8-752-010-60	IC CX20106			
		TRANSISTOR			
Q001	8-729-902-11	TRANSISTOR 2SC2021			
Q002	8-729-902-11	TRANSISTOR 2SC2021			
Q003	8-729-954-51	TRANSISTOR 2SC1545			
Q004	8-729-954-51	TRANSISTOR 2SC1545			
Q005	8-729-954-51	TRANSISTOR 2SC1545			
Q006	8-729-900-30	TRANSISTOR DTA144EF			
Q010	8-729-902-11	TRANSISTOR 2SC2021			
		RESISTOR			
R001	1-247-875-00	CARBON	68K	5%	1/6W
R002	1-247-903-00	CARBON	1M	5%	1/6W
R010	1-247-895-00	CARBON	470K	5%	1/6W
R011	1-249-437-11	CARBON	47K	5%	1/6W
R012	1-249-429-11	CARBON	10K	5%	1/6W
R013	1-249-437-11	CARBON	47K	5%	1/6W
R014	1-249-437-11	CARBON	47K	5%	1/6W
R015	1-249-437-11	CARBON	47K	5%	1/6W
R016	1-249-437-11	CARBON	47K	5%	1/6W
R017	1-249-437-11	CARBON	47K	5%	1/6W
R018	1-249-437-11	CARBON	47K	5%	1/6W
R030	1-247-862-00	CARBON	20K	5%	1/6W
R031	1-247-862-00	CARBON	20K	5%	1/6W
R032	1-247-862-00	CARBON	20K	5%	1/6W
R033	1-247-862-00	CARBON	20K	5%	1/6W
R034	1-247-853-00	CARBON	8.2K	5%	1/6W
R035	1-249-429-11	CARBON	10K	5%	1/6W
R036	1-249-429-11	CARBON	10K	5%	1/6W
R037	1-249-429-11	CARBON	10K	5%	1/6W
R038	1-247-862-00	CARBON	20K	5%	1/6W
R039	1-247-857-00	CARBON	12K	5%	1/6W
R051	1-247-817-00	CARBON	270	5%	1/6W
R052	1-247-817-00	CARBON	270	5%	1/6W
R053	1-247-817-00	CARBON	270	5%	1/6W
R054	1-247-817-00	CARBON	270	5%	1/6W
R055	1-247-817-00	CARBON	270	5%	1/6W
R056	1-247-817-00	CARBON	270	5%	1/6W
R062	1-247-817-00	CARBON	270	5%	1/6W
R063	1-247-817-00	CARBON	270	5%	1/6W
R064	1-247-817-00	CARBON	270	5%	1/6W
R066	1-247-817-00	CARBON	270	5%	1/6W
R067	1-247-817-00	CARBON	270	5%	1/6W
R068	1-249-429-11	CARBON	10K	5%	1/6W
R069	1-249-429-11	CARBON	10K	5%	1/6W
R070	1-249-429-11	CARBON	10K	5%	1/6W
R071	1-249-429-11	CARBON	10K	5%	1/6W
R072	1-249-429-11	CARBON	10K	5%	1/6W
R073	1-249-429-11	CARBON	10K	5%	1/6W
R074	1-247-775-00	CARBON	4.7	5%	1/6W
R075	1-215-476-00	METAL	200K	1%	1/6W
R076	1-247-863-00	CARBON	22K	5%	1/6W
R082	1-249-429-11	CARBON	10K	5%	1/6W
R083	1-249-429-11	CARBON	10K	5%	1/6W
R084	1-247-847-00	CARBON	4.7K	5%	1/6W
R085	1-247-823-00	CARBON	470	5%	1/6W
R086	1-249-437-11	CARBON	47K	5%	1/6W
R087	1-249-434-11	CARBON	27K	5%	1/6W
R089	1-247-783-00	CARBON	10	5%	1/6W
		SWITCH			
S001	1-554-174-00	SWITCH, KEY BOARD (QUICK TIMER)			
S002	1-554-174-00	SWITCH, KEY BOARD (SP/LP)			
S003	1-554-174-00	SWITCH, KEY BOARD (TIMER REC)			
S004	1-554-174-00	SWITCH, KEY BOARD (TIMER SET)			
S006	1-554-174-00	SWITCH, KEY BOARD (SELECT)			
S007	1-554-174-00	SWITCH, KEY BOARD (NEXT)			

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
SO08	1-554-174-00	SWITCH, KEY BOARD (+)	
SO09	1-554-174-00	SWITCH, KEY BOARD (TIMER SET)	
SO10	1-554-174-00	SWITCH, KEY BOARD (TIMER CHECK)	
SO11	1-554-174-00	SWITCH, KEY BOARD (-)	
SO12	1-554-174-00	SWITCH, KEY BOARD (INPUT SELECT)	
SO14	1-554-088-00	SWITCH, KEY BOARD (REC)	
SO15	1-554-174-00	SWITCH, KEY BOARD (DUB)	
SO16	1-554-174-00	SWITCH, KEY BOARD (CLOCK/COUNT)	
SO20	1-553-754-00	SWITCH, SLIDE (MAIN/SUB)	
SO21	1-553-754-00	SWITCH, SLIDE (ST/MIX/PCM)	
SO22	1-553-754-00	SWITCH, SLIDE (MULTI PCM)	
		CRYSTAL	
XO01	1-567-121-00	VIBRATOR, CRYSTAL	

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*1-615-718-11 PD-11 BOARD
****

DIODE

D501	8-719-110-32	DIODE PH302B (REMOTE SENSOR)	

****

*A-7060-159-A PC-15B BOARD, COMPLETE
****

CAPACITOR

CO01	1-161-974-00	CERAMIC	0.1MF	20%	16V
CO02	1-162-306-31	CERAMIC	0.01MF	20%	16V
CO03	1-162-306-31	CERAMIC	0.01MF	20%	16V
CO04	1-161-974-00	CERAMIC	0.1MF	20%	16V
CO05	1-123-381-00	ELECT	2.2MF	20%	50V
CO06	1-162-306-31	CERAMIC	0.01MF	20%	16V
CO07	1-162-306-31	CERAMIC	0.01MF	20%	16V
CO08	1-161-025-00	CERAMIC	0.1MF	10%	25V
CO09	1-102-513-00	CERAMIC	18PF	5%	50V
C101	1-161-059-00	CERANIC	0.047MF	20%	25V
C102	1-161-059-00	CERAMIC	0.047MF	20%	25V
C103	1-162-207-31	CERAMIC	22PF	5%	50V
C104	1-162-215-31	CERAMIC	47PF	5%	50V
C105	1-162-215-31	CERAMIC	47PF	5%	50V
C106	1-123-356-00	ELECT	10MF	20%	16V
C107	1-161-974-00	CERAMIC	0.1MF	20%	16V
C108	1-162-306-31	CERAMIC	0.01MF	20%	16V
C109	1-162-306-31	CERAMIC	0.01MF	20%	16V
C110	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C111	1-161-974-00	CERAMIC	0.1MF	20%	16V
C112	1-123-356-00	ELECT	10MF	20%	16V
C113	1-123-356-00	ELECT	10MF	20%	16V
C114	1-123-379-00	ELECT	0.47MF	20%	50V
C115	1-123-382-00	ELECT	3.3MF	20%	50V
C116	1-124-226-11	ELECT	6.8MF	20%	10V
C117	1-162-191-31	CERAMIC	2.2PF	10%	50V
C118	1-161-974-00	CERAMIC	0.1MF	20%	16V
C119	1-123-356-00	ELECT	10MF	20%	16V
C120	1-162-207-31	CERAMIC	22PF	5%	50V
C121	1-162-306-31	CERAMIC	0.01MF	20%	16V
C126	1-161-974-00	CERAMIC	0.1MF	20%	16V
C127	1-161-974-00	CERAMIC	0.1MF	20%	16V
C129	1-123-356-00	ELECT	10MF	20%	16V
C130	1-162-207-31	CERAMIC	22PF	5%	50V
C140	1-161-974-00	CERAMIC	0.1MF	20%	16V
C144	1-162-306-31	CERAMIC	0.01MF	20%	16V
C145	1-162-306-31	CERAMIC	0.01MF	20%	16V
C146	1-123-306-00	ELECT	47MF	20%	6.3V
C161	1-162-294-31	CERAMIC	0.001MF	10%	50V
C162	1-130-072-00	FILM	0.022MF	2%	100V
C301	1-130-493-00	MYLAR	0.068MF	5%	50V
C302	1-161-974-00	CERAMIC	0.1MF	20%	16V
C702	1-123-356-00	ELECT	10MF	20%	16V
C703	1-123-356-00	ELECT	10MF	20%	16V
C704	1-162-306-31	CERAMIC	0.01MF	30%	16V
C706	1-162-306-31	CERAMIC	0.01MF	20%	16V
C707	1-161-974-00	CERAMIC	0.1MF	20%	16V
C708	1-123-356-00	ELECT	10MF	20%	16V
C709	1-162-306-31	CERAMIC	0.01MF	20%	16V
C711	1-161-974-00	CERAMIC	0.1MF	20%	16V
C712	1-161-974-00	CERAMIC	0.1MF	20%	16V
C713	1-161-974-00	CERAMIC	0.1MF	20%	16V
C714	1-161-974-00	CERAMIC	0.1MF	20%	16V
C717	1-161-974-00	CERAMIC	0.1MF	20%	16V
C718	1-161-974-00	CERAMIC	0.1MF	20%	16V
C721	1-161-974-00	CERAMIC	0.1MF	20%	16V
C722	1-123-306-00	ELECT	47MF	20%	6.3V
C731	1-161-974-00	CERAMIC	0.1MF	20%	16V
C802	1-161-974-00	CERAMIC	0.1MF	20%	16V
C803	1-123-306-00	ELECT	47MF	20%	6.3V
C804	1-161-057-00	CERAMIC	0.033MF	10%	25V
C805	1-162-306-31	CERAMIC	0.01MF	20%	16V
C806	1-130-487-00	MYLAR	0.022MF	5%	50V
C807	1-130-487-00	MYLAR	0.022MF	5%	50V
C808	1-136-141-00	FILM	0.001MF	5%	50V
C809	1-162-306-31	CERAMIC	0.01MF	20%	16V
C810	1-123-306-00	ELECT	47MF	20%	6.3V
C811	1-161-974-00	CERAMIC	0.1MF	20%	16V
C812	1-130-487-00	MYLAR	0.022MF	5%	50V
C813	1-130-487-00	MYLAR	0.022MF	5%	50V
C814	1-162-306-31	CERAMIC	0.01MF	20%	16V
C815	1-136-141-00	FILM	0.001MF	5%	50V
C816	1-130-467-00	MYLAR	470PF	5%	50V
C817	1-130-467-00	MYLAR	470PF	5%	50V
C915	1-162-306-31	CERAMIC	0.01MF	20%	16V
C950	1-162-289-31	CERAMIC	390PF	10%	50V

CONNECTOR

CN102	*1-564-012-00	PIN, CONNECTOR 2P
CN103	*1-564-012-00	PIN, CONNECTOR 2P
CN104	*1-564-020-00	PIN, CONNECTOR 10P

When indicating parts by reference number, please include the board name.

PC-15B

Ref.No	Part No.	Description	Remark
CN105	*1-564-015-00	PIN, CONNECTOR 5P	
CN106	*1-564-022-00	PIN, CONNECTOR 12P	
CN107	*1-564-013-00	PIN, CONNECTOR 3P	
CN108	*1-564-013-00	PIN, CONNECTOR 3P	
CN111	*1-564-013-00	PIN, CONNECTOR 3P	
CN112	*1-564-015-00	PIN, CONNECTOR 5P	
		CONPOSITION CIRCUIT BLOCK	
CP161	1-232-929-11	COMPOSITION CIRCUIT BLOCK	
		DIODE	
D001	8-719-911-19	DIODE 1SS119	
D002	8-719-911-19	DIODE 1SS119	
D003	8-719-911-19	DIODE 1SS119	
D004	8-719-911-19	DIODE 1SS119	
D005	8-719-911-19	DIODE 1SS119	
D101	8-719-815-87	DIODE 1S1587	
D161	8-719-911-19	DIODE 1SS119	
D162	8-719-911-19	DIODE 1SS119	
D702	8-719-911-19	DIODE 1SS119	
D703	8-719-911-19	DIODE 1SS119	
D801	8-719-911-19	DIODE 1SS119	
D907	8-719-911-19	DIODE 1SS119	
D908	8-719-911-19	DIODE 1SS119	
		IC	
IC001	8-759-921-00	IC MB88421-187M	
IC002	8-759-045-38	IC MC14538BCP	
IC003	8-759-700-81	IC NJM555D	
IC101	8-759-913-65	IC CX23062	
IC102	8-759-913-66	IC CX23061	
IC103	8-759-302-92	IC CX20142	
IC104	8-759-302-93	IC CX20143	
IC105	8-759-901-28	IC MSM5128-12RS	
IC106	8-759-901-28	IC MSM5128-12RS	
IC111	8-759-915-30	IC CX23078	
IC151	8-759-919-93	IC MB88201-203N	
IC152	8-759-919-93	IC MB88201-203N	
IC153	8-759-919-93	IC MB88201-203N	
IC154	8-759-919-94	IC MB88201-204N	
IC155	8-759-200-54	IC TC40H386P	
IC301	8-759-240-69	IC TC4069UBP	
IC801	8-759-913-62	IC IR3N05	
IC802	8-759-913-62	IC IR3N05	
		COIL	
L102	1-407-169-XX	MICRO INDUCTOR 100UH	
L702	1-407-169-XX	MICRO INDUCTOR 100UH	
L703	1-407-169-XX	MICRO INDUCTOR 100UH	
L704	1-407-169-XX	MICRO INDUCTOR 100UH	
L705	1-407-169-XX	MICRO INDUCTOR 100UH	
L801	1-404-617-21	COIL, IFT	
L802	1-407-169-XX	MICRO INDUCTOR 100UH	
		TRANSISTOR	
Q003	8-729-900-33	TRANSISTOR DTC144EF	
Q004	8-729-902-11	TRANSISTOR 2SC2021	
Q005	8-729-900-80	TRANSISTOR DTC114ES	
Q006	8-729-900-45	TRANSISTOR DTC114EF	
Q007	8-729-900-33	TRANSISTOR DTC144EF	
Q008	8-729-900-33	TRANSISTOR DTC144EF	
Q009	8-729-900-45	TRANSISTOR DTC114EF	
Q010	8-729-900-33	TRANSISTOR DTC144EF	
Q011	8-729-900-33	TRANSISTOR DTC144EF	
Q012	8-729-900-89	TRANSISTOR DTC144ES	
Q161	8-729-902-11	TRANSISTOR 2SC2021	
Q162	8-729-902-11	TRANSISTOR 2SC2021	
Q163	8-729-900-38	TRANSISTOR DTA114EF	
Q703	8-729-902-11	TRANSISTOR 2SC2021	
Q704	8-729-902-11	TRANSISTOR 2SC2021	
Q801	8-729-900-63	TRANSISTOR DTA124ES	
Q802	8-729-900-36	TRANSISTOR DTC124ES	
Q803	8-729-900-89	TRANSISTOR DTC144ES	
Q804	8-729-245-83	TRANSISTOR 2SC2458	
Q805	8-729-245-83	TRANSISTOR 2SC2458	
Q806	8-729-245-83	TRANSISTOR 2SC2458	
Q807	8-729-245-83	TRANSISTOR 2SC2458	
Q808	8-729-900-36	TRANSISTOR DTC124ES	
Q809	8-729-105-73	TRANSISTOR 2SK523-L2	
Q905	8-729-900-33	TRANSISTOR DTC144EF	
		RESISTOR	
R001	1-247-831-00	CARBON 1K 5% 1/6W	
R004	1-247-831-00	CARBON 1K 5% 1/6W	
R005	1-247-831-00	CARBON 1K 5% 1/6W	
R006	1-247-831-00	CARBON 1K 5% 1/6W	
R007	1-247-831-00	CARBON 1K 5% 1/6W	
R036	1-247-859-00	CARBON 15K 5% 1/6W	
R037	1-247-879-00	CARBON 100K 5% 1/6W	
R038	1-249-429-11	CARBON 10K 5% 1/6W	
R039	1-249-429-11	CARBON 10K 5% 1/6W	
R040	1-247-869-00	CARBON 39K 5% 1/6W	
R041	1-249-437-11	CARBON 47K 5% 1/6W	
R042	1-249-429-11	CARBON 10K 5% 1/6W	
R043	1-249-429-11	CARBON 10K 5% 1/6W	
R103	1-247-831-00	CARBON 1K 5% 1/6W	
R104	1-247-831-00	CARBON 1K 5% 1/6W	
R105	1-249-429-11	CARBON 10K 5% 1/6W	
R106	1-249-417-11	CARBON 1K 5% 1/6W	
R107	1-249-421-11	CARBON 2.2K 5% 1/6W	
R108	1-247-831-00	CARBON 1K 5% 1/6W	
R110	1-247-823-00	CARBON 470 5% 1/6W	
R111	1-247-821-00	CARBON 390 5% 1/6W	
R112	1-249-419-11	CARBON 1.5K 5% 1/6W	
R113	1-247-827-00	CARBON 680 5% 1/6W	
R114	1-247-853-00	CARBON 8.2K 5% 1/6W	
R115	1-247-833-00	CARBON 1.2K 5% 1/6W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R116	1-247-833-00	CARBON	1.2K	5%	1/6W	
R117	1-215-415-00	METAL	560	1%	1/6W	
R118	1-249-429-11	CARBON	10K	5%	1/6W	
R119	1-247-859-00	CARBON	15K	5%	1/6W	
R120	1-247-859-00	CARBON	15K	5%	1/6W	
R121	1-247-831-00	CARBON	1K	5%	1/6W	
R122	1-247-863-00	CARBON	22K	5%	1/6W	
R123	1-247-861-00	CARBON	18K	5%	1/6W	
R124	1-247-843-00	CARBON	3.3K	5%	1/6W	
R125	1-247-815-00	CARBON	220	5%	1/6W	
R140	1-249-429-11	CARBON	10K	5%	1/6W	
R141	1-247-867-00	CARBON	33K	5%	1/6W	
R146	1-247-823-00	CARBON	470	5%	1/6W	
R148	1-247-827-00	CARBON	680	5%	1/6W	
R149	1-247-879-00	CARBON	100K	5%	1/6W	
R153	1-247-843-00	CARBON	3.3K	5%	1/6W	
R154	1-247-843-00	CARBON	3.3K	5%	1/6W	
R155	1-247-843-00	CARBON	3.3K	5%	1/6W	
R161	1-247-847-00	CARBON	4.7K	5%	1/6W	
R164	1-247-887-00	CARBON	220K	5%	1/6W	
R166	1-249-429-11	CARBON	10K	5%	1/6W	
R168	1-249-437-11	CARBON	47K	5%	1/6W	
R169	1-249-429-11	CARBON	10K	5%	1/6W	
R171	1-247-843-00	CARBON	3.3K	5%	1/6W	
R301	1-247-854-00	CARBON	9.1K	5%	1/6W	
R302	1-247-867-00	CARBON	33K	5%	1/6W	
R707	1-247-863-00	CARBON	22K	5%	1/6W	
R708	1-247-888-00	CARBON	240K	5%	1/6W	
R709	1-247-863-00	CARBON	22K	5%	1/6W	
R710	1-247-879-00	CARBON	100K	5%	1/6W	
R711	1-249-437-11	CARBON	47K	5%	1/6W	
R712	1-247-843-00	CARBON	3.3K	5%	1/6W	
R713	1-247-903-00	CARBON	1M	5%	1/6W	
R714	1-247-831-00	CARBON	1K	5%	1/6W	
R715	1-247-831-00	CARBON	1K	5%	1/6W	
R716	1-247-831-00	CARBON	1K	5%	1/6W	
R717	1-247-831-00	CARBON	1K	5%	1/6W	
R720	1-249-437-11	CARBON	47K	5%	1/6W	
R802	1-247-841-00	CARBON	2.7K	5%	1/6W	
R803	1-249-437-11	CARBON	47K	5%	1/6W	
R804	1-249-437-11	CARBON	47K	5%	1/6W	
R805	1-247-831-00	CARBON	1K	5%	1/6W	
R806	1-247-869-00	CARBON	39K	5%	1/6W	
R807	1-247-841-00	CARBON	2.7K	5%	1/6W	
R808	1-249-437-11	CARBON	47K	5%	1/6W	
R809	1-249-437-11	CARBON	47K	5%	1/6W	
R810	1-247-807-00	CARBON	100	5%	1/6W	
R811	1-247-867-00	CARBON	33K	5%	1/6W	
R813	1-247-841-00	CARBON	2.7K	5%	1/6W	
R814	1-249-434-11	CARBON	27K	5%	1/6W	
R815	1-247-831-00	CARBON	1K	5%	1/6W	
R816	1-247-831-00	CARBON	1K	5%	1/6W	
R817	1-249-434-11	CARBON	27K	5%	1/6W	
R818	1-249-434-11	CARBON	27K	5%	1/6W	
R819	1-247-859-00	CARBON	15K	5%	1/6W	
R940	1-249-429-11	CARBON	10K	5%	1/6W	
R950	1-249-429-11	CARBON	10K	5%	1/6W	

VARIABLE RESISTOR

RV102	1-228-991-00	RES, ADJ, CARBON 2.2K				
RV103	1-228-991-00	RES, ADJ, CARBON 2.2K				
RV801	1-228-989-00	RES, ADJ, METAL GLAZE 470				
RV802	1-228-989-00	RES, ADJ, METAL GLAZE 470				
RV803	1-228-991-00	RES, ADJ, METAL GLAZE 2.2K				

CRYSTAL

X101	1-567-419-11	VIBRATOR, LITHIUM TANTALATE				

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	*A-7060-160-A	RP-25D BOARD, COMPLETE				
		**********				
	*3-689-065-01	CASE (MAIN), SHIELD, RP				
	*3-689-067-01	LID, REAR, SHIELD CASE, RP				

CAPACITOR

C001	1-161-025-00	CERAMIC	0.1MF	10%	25V
C002	1-123-618-00	ELECT	22MF	20%	6.3V
C003	1-161-974-00	CERAMIC	0.1MF	20%	16V
C004	1-161-013-00	CERAMIC	0.01MF	10%	25V
C005	1-123-618-00	ELECT	22MF	20%	6.3V
C006	1-123-618-00	ELECT	22MF	20%	6.3V
C007	1-161-013-00	CERAMIC	0.01MF	10%	25V
C009	1-101-884-00	CERAMIC	56PF	5%	50V
C010	1-102-816-00	CERAMIC	120PF	5%	50V
C011	1-102-973-00	CERAMIC	100PF	5%	50V
C012	1-161-013-00	CERAMIC	0.01MF	10%	25V
C013	1-161-013-00	CERAMIC	0.01MF	10%	25V
C014	1-161-013-00	CERAMIC	0.01MF	10%	25V
C015	1-161-974-00	CERAMIC	0.1MF	20%	16V
C016	1-161-013-00	CERAMIC	0.01MF	10%	25V
C017	1-161-974-00	CERAMIC	0.1MF	20%	16V
C018	1-161-013-00	CERAMIC	0.01MF	10%	25V
C019	1-161-013-00	CERAMIC	0.01MF	10%	25V
C020	1-161-013-00	CERAMIC	0.01MF	10%	25V
C021	1-161-013-00	CERAMIC	0.01MF	10%	25V
C024	1-161-059-00	CERAMIC	0.047MF	10%	25V
C025	1-123-611-00	ELECT	1MF	20%	50V
C026	1-102-129-00	CERAMIC	0.01MF	10%	50V
C027	1-102-965-00	CERAMIC	39PF	5%	50V
C028	1-102-965-00	CERAMIC	39PF	5%	50V
C029	1-102-129-00	CERAMIC	0.01MF	10%	50V
C030	1-102-973-00	CERAMIC	100PF	5%	50V

When indicating parts by reference number, please include the board name.

RP-25D

Ref.No	Part No.	Description			Remark
C032	1-123-618-00	ELECT	22MF	20%	6.3V
C033	1-161-013-00	CERAMIC	0.01MF	10%	25V
C036	1-123-611-00	ELECT	1MF	20%	50V
C042	1-161-059-00	CERAMIC	0.047MF	10%	25V
C043	1-161-013-00	CERAMIC	0.01MF	10%	25V
C044	1-161-013-00	CERAMIC	0.01MF	10%	25V
C045	1-161-013-00	CERAMIC	0.01MF	10%	25V
C050	1-161-974-00	CERAMIC	0.1MF	20%	16V
C051	1-161-974-00	CERAMIC	0.1MF	20%	16V
C053	1-161-025-00	CERAMIC	0.1MF	10%	25V
C054	1-161-025-00	CERAMIC	0.1MF	10%	25V
C200	1-161-059-00	CERAMIC	0.047MF	10%	25V
C202	1-123-647-00	ELECT	47MF	20%	6.3V
C203	1-161-059-00	CERAMIC	0.047MF	10%	25V
C204	1-161-059-00	CERAMIC	0.047MF	10%	25V
C205	1-161-059-00	CERAMIC	0.047MF	10%	25V
C206	1-123-618-00	ELECT	22MF	20%	6.3V
C207	1-161-059-00	CERAMIC	0.047MF	10%	25V
C208	1-102-963-00	CERAMIC	33PF	5%	50V
C209	1-123-617-00	ELECT	10MF	20%	16V
C210	1-123-618-00	ELECT	22MF	20%	6.3V
C211	1-161-059-00	CERAMIC	0.047MF	10%	25V
C212	1-161-013-00	CERAMIC	0.01MF	10%	25V
C213	1-161-013-00	CERAMIC	0.01MF	10%	25V
C214	1-161-013-00	CERAMIC	0.01MF	10%	25V

CONNECTOR

CN001	*1-560-896-00	PIN, CONNECTOR 8P
CN002	*1-560-895-00	PIN, CONNECTOR 7P
CN003	*1-564-008-00	PIN, CONNECTOR 9P
CN004	*1-560-890-00	PIN, CONNECTOR 2P
CN005	*1-564-002-00	PIN, CONNECTOR 3P
CN006	*1-564-031-00	PIN, CONNECTOR 6P
CN007	*1-564-003-00	PIN, CONNECTOR 4P

IC

IC001	8-752-003-40	IC CX20034

COIL

L001	1-408-409-00	MICRO INDUCTOR 10UH
L002	1-408-423-00	MICRO INDUCTOR 150UH
L003	1-408-413-00	MICRO INDUCTOR 22UH
L004	⚠1-408-409-00	MICRO INDUCTOR 220UH
L005	1-408-409-00	MICRO INDUCTOR 10UH
L006	1-408-411-00	MICRO INDUCTOR 15UH
L007	1-408-411-00	MICRO INDUCTOR 15UH
L008	1-408-413-00	MICRO INDUCTOR 22UH
L201	1-408-413-00	MICRO INDUCTOR 22UH
L202	1-408-411-00	MICRO INDUCTOR 15UH
L203	1-408-876-00	MICRO INDUCTOR 0.18UH

Ref.No	Part No.	Description	Remark
		TRANSISTOR	
Q001	8-729-117-54	TRANSISTOR 2SA1175	
Q002	8-729-117-54	TRANSISTOR 2SA1175	
Q200	8-729-353-52	TRANSISTOR 2SC535	
Q201	8-729-603-50	TRANSISTOR 2SC403SP	
Q202	8-729-603-50	TRANSISTOR 2SC403SP	
Q203	8-729-603-50	TRANSISTOR 2SC403SP	
Q204	8-729-603-50	TRANSISTOR 2SC403SP	
Q205	8-729-245-83	TRANSISTOR 2SC2458	
Q206	8-729-245-83	TRANSISTOR 2SC2458	
Q207	8-729-900-36	TRANSISTOR DTC124ES	
Q208	8-729-900-63	TRANSISTOR DTA124ES	
Q213	8-729-245-83	TRANSISTOR 2SC2458	
Q214	8-729-900-65	TRANSISTOR DTA144ES	
Q215	8-729-900-83	TRANSISTOR DTC124XS	
		RESISTOR	
R001	1-247-861-00	CARBON 18K	5% 1/6W
R002	1-247-863-00	CARBON 22K	5% 1/6W
R003	1-247-863-00	CARBON 22K	5% 1/6W
R004	1-247-863-00	CARBON 22K	5% 1/6W
R005	1-247-837-00	CARBON 1.8K	5% 1/6W
R006	1-249-437-11	CARBON 47K	5% 1/6W
R009	1-247-863-00	CARBON 22K	5% 1/6W
R010	1-247-863-00	CARBON 22K	5% 1/6W
R011	1-247-863-00	CARBON 22K	5% 1/6W
R012	1-247-861-00	CARBON 18K	5% 1/6W
R013	1-247-837-00	CARBON 1.8K	5% 1/6W
R014	1-249-437-11	CARBON 47K	5% 1/6W
R015	1-247-863-00	CARBON 22K	5% 1/6W
R016	1-247-863-00	CARBON 22K	5% 1/6W
R017	1-249-419-11	CARBON 1.5K	5% 1/6W
R018	1-249-419-11	CARBON 1.5K	5% 1/6W
R019	1-247-863-00	CARBON 22K	5% 1/6W
R020	1-249-434-11	CARBON 27K	5% 1/6W
R021	1-247-813-00	CARBON 180	5% 1/6W
R022	1-247-807-00	CARBON 100	5% 1/6W
R023	1-247-807-00	CARBON 100	5% 1/6W
R029	1-249-429-11	CARBON 10K	5% 1/6W
R036	1-247-777-00	CARBON 5.6	5% 1/6W
R037	1-247-863-00	CARBON 22K	5% 1/6W
R038	1-247-863-00	CARBON 22K	5% 1/6W
R039	1-247-821-00	CARBON 390	5% 1/6W
R041	1-247-851-00	CARBON 6.8K	5% 1/6W
R042	1-247-843-00	CARBON 3.3K	5% 1/6W
R052	1-247-863-00	CARBON 22K	5% 1/6W
R053	1-247-807-00	CARBON 100	5% 1/6W
R054	1-247-827-00	CARBON 680	5% 1/6W
R056	1-247-823-00	CARBON 470	5% 1/6W
R200	1-247-853-00	CARBON 8.2K	5% 1/6W
R201	1-247-841-00	CARBON 2.7K	5% 1/6W
R202	1-247-811-00	CARBON 150	5% 1/6W

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R203	1-247-831-00	CARBON	1K	5%	1/6W	
R204	1-247-845-00	CARBON	3.9K	5%	1/6W	
R205	1-247-823-00	CARBON	470	5%	1/6W	
R206	1-247-837-00	CARBON	1.8K	5%	1/6W	
R207	1-247-831-00	CARBON	1K	5%	1/6W	
R208	1-247-833-00	CARBON	1.2K	5%	1/6W	
R209	1-249-419-11	CARBON	1.5K	5%	1/6W	
R210	1-247-807-00	CARBON	100	5%	1/6W	
R211	1-247-831-00	CARBON	1K	5%	1/6W	
R212	1-247-867-00	CARBON	33K	5%	1/6W	
R213	1-247-859-00	CARBON	15K	5%	1/6W	
R214	1-247-825-00	CARBON	560	5%	1/6W	
R215	1-247-821-00	CARBON	390	5%	1/6W	
R216	1-247-823-00	CARBON	470	5%	1/6W	
R219	1-247-823-00	CARBON	470	5%	1/6W	
R301	1-247-807-00	CARBON	100	5%	1/6W	

VARIABLE RESISTOR

RV001	1-228-920-00	RES, ADJ, CARBON 2.2K
RV002	1-228-920-00	RES, ADJ, CARBON 2.2K
RV003	1-228-994-00	RES, ADJ, CARBON 10K
RV005	1-228-994-00	RES, ADJ, CARBON 10K
RV200	1-228-920-00	RES, ADJ, CARBON 2.2K

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*1-615-714-11 PW-9A BOARD
****

*3-689-521-01 HOLDER, LED, ROUND

DIODE

D301	8-719-812-33	DIODE TLG123A (POWER)
D302	8-719-812-32	DIODE TLY123 (▲)

RESISTOR

R301	1-247-817-00	CARBON	270	5%	1/6W	
R302	1-247-817-00	CARBON	270	5%	1/6W	

VARIABLE RESISTOR

RV301	1-228-988-00	RES, VAR, CARBON 10K/10K (PHONE LEVEL)

SWITCH

S301	1-554-174-00	SWITCH, KEY BOARD (POWER)
S302	1-554-174-00	SWITCH, KEY BOARD (▲)

****

*A-706-014-8A HP-11A BOARD, COMPLETE
****

JACK

CNJ401	1-507-833-00	JACK (HEADPHONE)

Ref.No	Part No.	Description	Remark
	*1-615-717-11	FU-33A BOARD **********	
	*3-674-372-00	HOLDER (A), LED	

DIODE

D201	8-719-812-33	DIODE TLG123A (▶)
D202	8-719-812-32	DIODE TLY123 (▶▶)
D204	8-719-812-30	DIODE TLO123 (▮▮/▶◀)
D205	8-719-812-32	DIODE TLY123 (◀◀)

TRANSISTOR

Q202	8-729-900-45	TRANSISTOR DTC114EF
Q203	8-729-900-45	TRANSISTOR DTC114EF
Q204	8-729-900-45	TRANSISTOR DTC114EF
Q205	8-729-900-45	TRANSISTOR DTC114EF

RESISTOR

R201	1-247-837-00	CARBON	1.8K	5%	1/6W
R202	1-249-421-11	CARBON	2.2K	5%	1/6W
R203	1-247-843-00	CARBON	3.3K	5%	1/6W
R204	1-247-847-00	CARBON	4.7K	5%	1/6W
R205	1-247-853-00	CARBON	8.2K	5%	1/6W
R206	1-247-859-00	CARBON	15K	5%	1/6W
R209	1-247-817-00	CARBON	270	5%	1/6W
R210	1-247-817-00	CARBON	270	5%	1/6W
R211	1-247-817-00	CARBON	270	5%	1/6W
R212	1-247-817-00	CARBON	270	5%	1/6W

SWITCH

S201	1-554-174-00	SWITCH, KEY BOARD (▮▮▶)
S202	1-554-174-00	SWITCH, KEY BOARD (▮▮/▶◀)
S203	1-554-174-00	SWITCH, KEY BOARD (■)
S204	1-554-174-00	SWITCH, KEY BOARD (▶▶)
S205	1-554-174-00	SWITCH, KEY BOARD (▶)
S206	1-554-174-00	SWITCH, KEY BOARD (◀◀)
S207	1-554-174-00	SWITCH, KEY BOARD (▮▶)
S208	1-554-174-00	SWITCH, KEY BOARD (X2)

****

*1-615-715-11 VJ-1A BOARD
****

JACK

MJ601	1-562-808-11	JACK (MIC L)
MJ602	1-562-808-11	JACK (MIC R)

VARIABLE RESISTOR

RV601	1-230-809-11	RES, VAR, SLIDE 10K
RV602	1-230-811-11	RES, VAR, SLIDE 10K

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
		LS-9 BOARD **********	
		CONNECTOR	
CN904	*1-564-613-21	PIN, CONNECTOR (HOOK TYPE)	
**********			
	*1-615-316-11	TE-1A BOARD **********	
	*3-689-011-01	HOLDER, SENSOR	
		RESISTOR	
Q004	8-729-700-08	NJL7141E	
**********			
	*1-615-317-11	TE-2A BOARD **********	
	*3-689-011-01	HOLDER, SENSOR	
		RELAY	
PL001	1-518-575-21	LAMP, PILOT	
PL002	1-518-575-21	LAMP, PILOT	
		TRANSISTOR	
Q003	8-729-700-08	NJL7141E	
		SWITCH	
S001	1-553-226-00	SWITCH, LEAF (CASSETTE IN)	
**********			
	1-613-367-11	LD-1 BOARD **********	
		DIODE	
D001	8-719-912-46	DIODE GL-450	
**********			
	*1-615-309-11	RS-11A BOARD **********	
	*3-689-076-01	HOLDER, REEL SENSOR	
		DIODE	
PH001	8-719-751-42	DIODE NJL5141E	
PH002	8-719-751-42	DIODE NJL5141E	
PH003	8-719-751-42	DIODE NJL5141E	

Ref.No	Part No.	Description			Remark
		MS-4 BOARD **********			
		CAPACITOR			
C902	1-163-038-00	CERAMIC CHIP 0.1MF			25V
**********					
	*A-7070-117-A	PS-84A BOARD, COMPLETE (AEP MODEL)			
	*A-7070-121-A	PS-84B BOARD, COMPLETE (UK MODEL) **********			
	1-533-162-00	HOLDER, FUSE			
⚠	2-430-344-01	COVER (CC-1017), INSULATING (AEP MODEL)			
⚠	3-691-946-01	COVER, SQUARE CAPACITOR			
	*4-363-146-00	HEAT SINK, V.OUT			
		CAPACITOR			
C101	⚠1-130-710-11	FILM	0.1MF	20%	250V
C105	1-123-356-00	ELECT	10MF	20%	16V
C106	1-123-380-00	ELECT	1MF	20%	50V
C107	1-123-349-00	ELECT	1000MF	20%	35V
C109	1-123-380-00	ELECT	1MF	20%	50V
C110	⚠1-161-742-51	CERAMIC	2200PF	20%	400V (AEP MODEL)
C111	⚠1-161-742-52	CERAMIC	2200PF	20%	400V (AEP MODEL)
C112	⚠1-161-742-51	CERAMIC	2200PF	20%	400V (AEP MODEL)
C113	1-123-371-00	ELECT	22MF	20%	63V
C114	1-123-371-00	ELECT	22MF	20%	63V
C115	1-123-346-00	ELECT	220MF	20%	35V
C116	1-123-346-00	ELECT	220MF	20%	35V
C117	1-123-375-00	ELECT	220MF	20%	63V
C118	⚠1-161-742-51	CERAMIC	2200PF	20%	400V (AEP MODEL)
		CONNECTOR			
CN101	*1-560-893-00	PIN, CONNECTOR 5P			
CN102	*1-560-892-00	PIN, CONNECTOR 4P			
		DIODE			
D102	8-719-911-19	DIODE 1SS119			
D103	8-719-101-02	DIODE RD30EB4			
D104	8-719-100-44	DIODE RD7.5EB2			
D106	8-719-982-04	DIODE ERB81-004			
D107	8-719-982-04	DIODE ERB81-004			
D108	8-719-815-85	DIODE 1S1585			
D109	8-719-815-85	DIODE 1S1585			
D112	8-719-815-85	DIODE 1S1585			
D113	8-719-815-85	DIODE 1S1585			
D115	8-719-101-24	DIODE RD39EB2			

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
		FUSE	
F101	⚠1-532-235-11	FUSE, TIME-LAG T315MA 250V	
		IC LINK	
PS101	⚠1-532-679-11	LINK, IC (ICP-N15) (AEP MODEL)	
PS101	⚠1-532-605-11	LINK, IC (ICP-N10) (UK MODEL)	
PS102	⚠1-532-675-21	LINK, IC (ICP-N38)	
PS103	⚠1-532-675-11	LINK, IC (ICP-F38)	
		TRANSISTOR	
Q101	8-729-202-02	TRANSISTOR 2SB1015	
Q104	8-729-178-54	TRANSISTOR 2SC2785	
		RESISTOR	
R104	1-249-429-11	CARBON 10K 5% 1/6W	
R105	1-247-149-00	CARBON 5.6K 5% 1/4W	
R111	1-249-429-11	CARBON 10K 5% 1/6W	
R120	⚠1-212-944-51	FUSIBLE 2.7 5% 1/2W	F
		TRANSFORMER	
T102	⚠1-421-357-31	TRANSFORMER, LINE FILTER	
		THERMISTOR	
TH101	⚠1-806-886-11	THERMISTOR (POSITIVE) 10	
		**********	
	*A-7070-118-A	PS-85A BOARD, COMPLETE **********	
	1-533-162-00	HOLDER, FUSE	
		CAPACITOR	
C201	1-123-333-00	ELECT 100MF 20% 25V	
C203	1-123-306-00	ELECT 47MF 20% 10V	
C204	1-125-298-00	ELECT(BLOCK) 10000MF 20% 25V	
C205	1-123-333-00	ELECT 100MF 20% 16V	
C207	1-123-333-00	ELECT 100MF 20% 16V	
C209	1-123-319-51	ELECT 47MF 20% 16V	
C211	1-125-347-00	DOUBLE LAYERS 0.22 5.5V	
C212	1-123-337-00	ELECT 1000MF 20% 25V	
C214	1-123-356-00	ELECT 10MF 20% 16V	
C216	1-123-332-00	ELECT 47MF 20% 25V	
C217	1-123-332-00	ELECT 47MF 20% 25V	
C218	1-123-319-51	ELECT 47MF 20% 16V	
C220	1-123-319-51	ELECT 47MF 20% 16V	
		CONNECTOR	
CN201	*1-560-890-00	PIN, CONNECTOR 2P	
CN203	*1-560-891-00	PIN, CONNECTOR 3P	
CN206	*1-560-890-00	PIN, CONNECTOR 2P	
CN207	*1-560-895-00	PIN, CONNECTOR 7P	
CN208	*1-560-892-00	PIN, CONNECTOR 4P	
CN209	*1-564-031-00	PIN, CONNECTOR 6P	
CN210	*1-560-894-00	PIN, CONNECTOR 6P	
CN211	*1-560-890-00	PIN, CONNECTOR 2P	
		DIODE	
D201	8-719-500-09	DIODE D5FB20F	
D202	8-719-100-58	DIODE RD10EB3	
D203	8-719-100-58	DIODE RD10EB3	
D204	8-719-100-39	DIODE RD6.2EB3	
D205	8-719-200-02	DIODE 10E-2	
D206	8-719-200-02	DIODE 10E-2	
D207	8-719-911-19	DIODE 1SS119	
D208	8-719-911-19	DIODE 1SS119	
D209	8-719-100-58	DIODE RD10EB3	
D210	8-719-100-58	DIODE RD10EB3	
D211	8-719-911-19	DIODE 1SS119	
D212	8-719-911-19	DIODE 1SS119	
D213	8-719-100-38	DIODE RD6.2EB2	
D214	8-719-100-44	DIODE RD7.5EB2	
		FUSE	
F201	⚠1-532-259-11	FUSE, TIME-LAG T1.6A 250V	
F202	⚠1-532-203-11	FUSE, TIME-LAG T2.0A 250V	
		IC	
IC201	8-759-801-26	IC L78M06	
IC202	8-759-700-08	IC NJM4558S	
		IC LINK	
PS201	⚠1-532-605-11	LINK, IC (ICP-N10)	
PS202	⚠1-532-727-11	LINK, IC (ICP-N5)	
PS203	⚠1-532-727-11	LINK, IC (ICP-N5)	
PS204	⚠1-532-727-11	LINK, IC (ICP-N5)	
PS205	⚠1-532-675-00	LINK, IC	
		TRANSISTOR	
Q201	8-729-201-78	TRANSISTOR 2SD1406	
Q202	8-729-201-78	TRANSISTOR 2SD1406	
Q203	8-729-178-54	TRANSISTOR 2SC2785	
Q204	8-729-201-78	TRANSISTOR 2SD1406	
Q205	8-729-178-54	TRANSISTOR 2SC2785	
Q206	8-729-201-78	TRANSISTOR 2SD1406 (AEP MODEL)	
Q206	⚠8-729-201-78	TRANSISTOR 2SD1406 (UK MODEL)	
Q207	8-729-202-02	TRANSISTOR 2SB1015 (AEP MODEL)	
Q207	⚠8-729-202-02	TRANSISTOR 2SB1015 (UK MODEL)	
Q210	8-729-177-32	TRANSISTOR 2SD773	
Q211	8-729-900-61	TRANSISTOR DTA114ES	
Q212	8-729-900-89	TRANSISTOR DTC144ES	
Q213	8-729-177-33	TRANSISTOR 2SD773-4	
Q214	8-729-113-33	TRANSISTOR 2SB733-4	
		RESISTOR	
R201	1-247-831-00	CARBON 1K 5% 1/6W	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R202	1-247-829-00	CARBON	820	5%	1/6W	
R203	1-247-825-00	CARBON	560	5%	1/6W	
R204	1-247-833-00	CARBON	1.2K	5%	1/6W	
R205	1-247-829-00	CARBON	820	5%	1/6W	
R206	1-247-700-11	CARBON	100	5%	1/4W	
R209	1-247-829-00	CARBON	820	5%	1/6W	
R210	1-247-829-00	CARBON	820	5%	1/6W	
R212	1-249-421-11	CARBON	2.2K	5%	1/6W	
R213	1-247-821-00	CARBON	390	5%	1/6W	
R214	1-247-767-00	CARBON	2.2	5%	1/6W	
R215	1-247-841-00	CARBON	2.7K	5%	1/6W	
R216	1-247-843-00	CARBON	3.3K	5%	1/6W	
R217	1-247-767-00	CARBON	2.2	5%	1/6W	
R219 ⚠	1-212-849-51	FUSIBLE	4.7	5%	1/4W	F
R220	1-247-704-11	CARBON	220	5%	1/4W	
R221	1-247-847-00	CARBON	4.7K	5%	1/6W	
R222	1-247-697-11	CARBON	56	5%	1/4W	
R223	1-247-831-00	CARBON	1K	5%	1/6W (AEP MODEL)	
R223 ⚠	1-247-831-00	CARBON	1K	5%	1/6W (UK MODEL)	
R224 ⚠	1-247-855-00	CARBON	10K	5%	1/6W (AEP MODEL)	
R224 ⚠	1-247-855-00	CARBON	10K	5%	1/6W (AEP MODEL)	
R225 ⚠	1-247-855-00	CARBON	10K	5%	1/6W (AEP MODEL)	
R225 ⚠	1-247-855-00	CARBON	10K	5%	1/6W (UK MODEL)	
R230	1-247-807-00	CARBON	100	5%	1/6W	

THERMISTOR

TH201 ⚠	1-806-883-11	THERMISTOR (POSITIVE) 3.3	

****

	*1-616-185-11	PS-86A BOARD	
		**********	

IC

IC301 ⚠	8-749-953-62	IC STK5362	

****

	*1-616-186-11	PS-87A BOARD	
		**********	

DIODE

D401	8-719-100-69	DIODE RD13EB3	
D402	8-719-911-19	DIODE 1SS119	

IC

IC401	8-759-280-12	IC TA78012AP	

Ref.No	Part No.	Description	Remark

TRANSISTOR

Q402	8-729-177-32	TRANSISTOR 2SD773	

****

MISCELLANEOUS
****

	A-7090-029-A	M-SW ASSY	
	⚠ 1-464-470-11	BOOSTER MIXER, RF MODULATOR (RFU-830) (UK MODEL)	
	⚠ 1-464-471-11	BOOSTER MIXER, RF MODULATOR (RFU-831) (AEP MODEL)	
	⚠ 1-534-817-31	CORD, POWER (AEP MODEL)	
	⚠ 1-551-884-32	CORD, POWER (UK MODEL)	
	1-535-535-11	TERMIANL, SHAFT GROUND	
	*1-555-110-00	CABLE, PIN	
C901	1-161-073-11	CAP, CERAMIC 0.033MF	
M902	8-838-094-01	MOTOR, DC (BHF-2800C) (CAPSTAN)	
M903	8-835-110-01	MOTOR, DC (DNR-5301A) (CONTROL)	
M904	⚠ A-7090-030-A	MOTOR ASSY,L (LOADING)	
PM901	⚠ 1-454-377-11	SOLENOID, PLUNGER (BRAKE)	
S901	1-554-942-11	SWITCH, PUSH (RECOG R)	
S902	1-554-942-11	SWITCH, PUSH (RECOG L)	
T101	⚠ 1-448-236-11	TRANSFORMER, POWER	

****

ACCESSORYS AND PACKING MATERIALS
****

	A-6765-736-A	COMMANDER ASSY (RMT-405)
	1-551-734-11	CORD, CONNECTION
	1-551-513-00	CABLE, COAXAL ASSY
	1-551-513-00	CORD ASSY COAXIAL
	*3-711-960-01	INDIVIDUAL CARTON
	*3-711-991-01	CUSHION (REAR)
	*3-711-992-01	CUSHION (FRONT)
	3-694-484-01	DRIVER, VOLUME
	3-701-628-00	BAG, POLYETHYLENE
	3-765-556-11	MANUAL, INSTRUCTION (ENGLISH)
	3-765-556-41	MANUAL, INSTRUCTION (AEP MODEL) (FRENCH, GERMANY DETCH)
	3-765-556-51	MANUAL, INSTRUCTION (AEP MODEL) (SPANISH, SWEDISH, ITARIAN)

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

SECTION 7
ADJUSTMENTS

1. MECHANICAL CHECK, ADJUSTMENT AND PREPARATIONS FOR REPLACEMENT

Note: Regarding the removal procedures of the cabinet and board, see Section 2.

1-1. CASSETTE COMPARTMENT ASSEMBLY AND OPERATION WITHOUT TAPE INSERTED

Note: The set will not operate if there is a strong light source near it.

1. Loading

1) Remove the front panel and covers (upper, lower) according to item 1-1.
2) Connect a power supply and press the power button to turn on.
3) Press the EJECT button.
4) Disconnect power supply.
5) According to item Section 2, 2-3, remove the cassette compartment assembly. (Do not disconnect connector CN20 (white) 5P.)
6) Place tape over the pin coming out of the push switch ❷.
7) Connect power supply and press the power button to turn on.
8) Press door gear coupling plate ❸ in the direction of arrow Ⓐ. (Refer to Fig. 1-1)

2. Putting into Playback State

1) Perform the loading procedure in 1.
2) Place the rubber band ❹ as shown between S reel and T reel sides.
3) Place a cap ❺ over the LED assembly.
4) Press the playback button, and when the T reel side starts to rotate, press the tension regulator arm assembly ❻ in the direction of arrow Ⓑ. (At this time, the tension regulator band is released and the S reel side rotates.)
5) Press the stop button to stop. (Fig. 1-1)

3. Putting into Recording State

1) Perform the loading procedure in 1.
2) Place a rubber band ❹ as shown between the S reel and T reels.
3) Place a cap ❺ over the LED assembly.
4) Press the recording button, and when the T reel side starts to rotate, push the tension regulator arm assembly ❻ in the direction of arrow. Ⓑ. (At this time, the tension regulator band is released and the S reel side rotates.)
5) Press the stop button to stop (Fig. 1-1)

4. Eject

1) Press the EJECT button. (Press the C.L. slider ❼ in the direction of arrow Ⓒ when opening the door gear coupling plate ❸.) (Fig. 1-1)

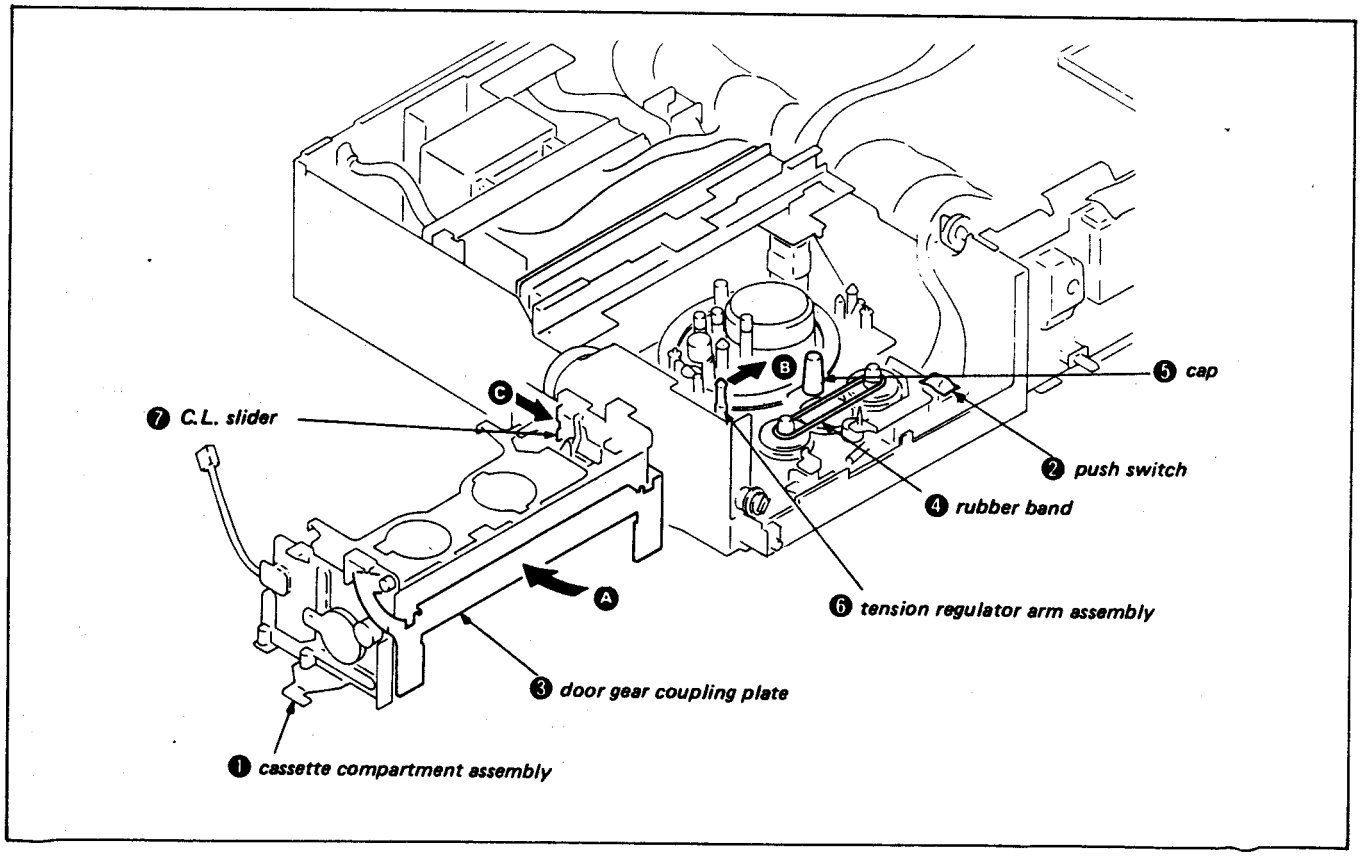


Fig. 1-1.

1-2. HANDLING OF MODE SELECTOR

1. Location of Parts (exterior)

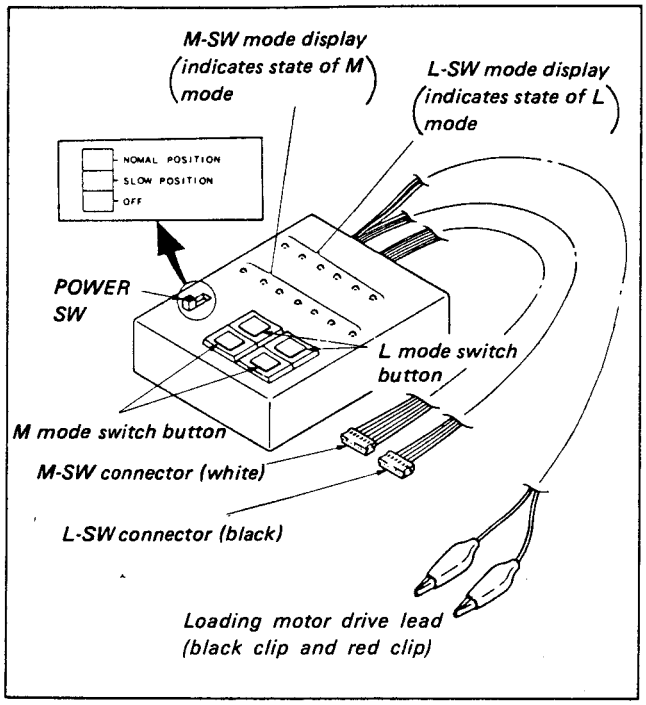


Fig. 1-2

2. Connection

1) Remove the two connectors ❶ on the SS-38F board.
2) Remove the MD-8D board ❷ according to item Section 2, 2-8.
3) Insert the M-SW connector (6P connector, 6 harness, white) ❸ into the set MS-4 board.
4) Insert the L-SW connector (6P connector, 4 harness, black) ❹ into the set LS-9 board.
5) Connect the loading motor drive lead ❺ red lead side to the loading motor red clip and the brown lead to the black clip. (Fig. 1-3)

3. Caution

1) When operating L-SW, be sure to set the M-SW mode to LOADING/UNLOADING.
2) When operating M-SW, be sure to set the L-SW mode to TOP or END.

4. Handling

BLANK lighs up regardless of L MODE or M MODE when it is in neither mode during select.

1) L MODE
   - When the L mode switch button right side is pressed continuously, the display lights up from LOADING TOP → LOADING END, in order from left to right.
   - To go from LOADING END→LOADING TOP, press the left button continuously until the desired MODE is reached.
   - In slow position, the L mode operates more slowly than for normal position.
2) M MODE
   - Set L-SW to LOADING TOP before performing EJECT.
   - Set L-SW to LOADING END to perform FF/REW→ RVS or RVS → FF/REW.
   - When the right M MODE switch button is pressed continuously, the display lights up from EJECT → RVS in order from left to right.
   - To go from RVS→EJECT, press the left side switch button continuously until the desired MODE is reached.

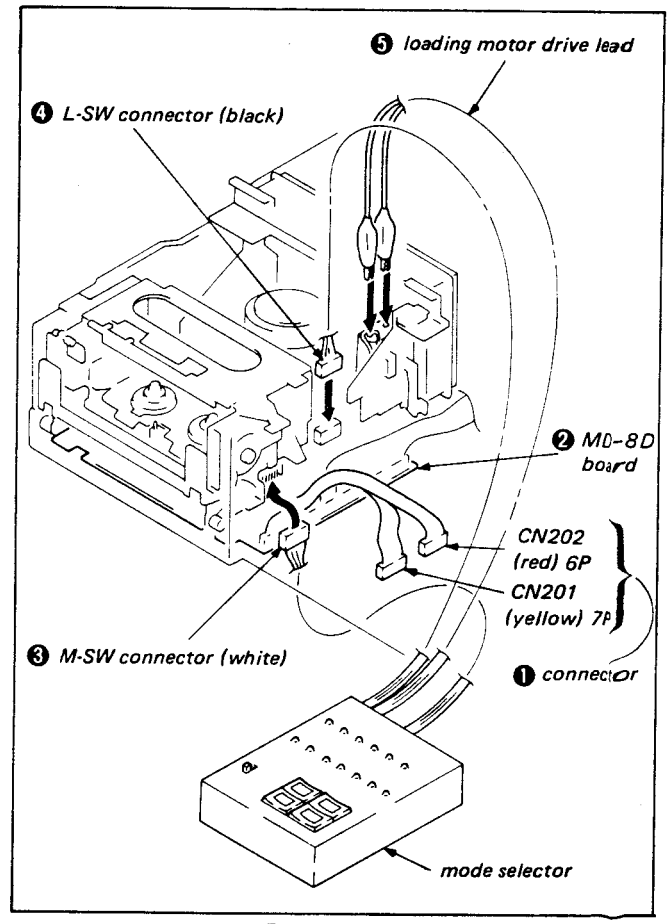
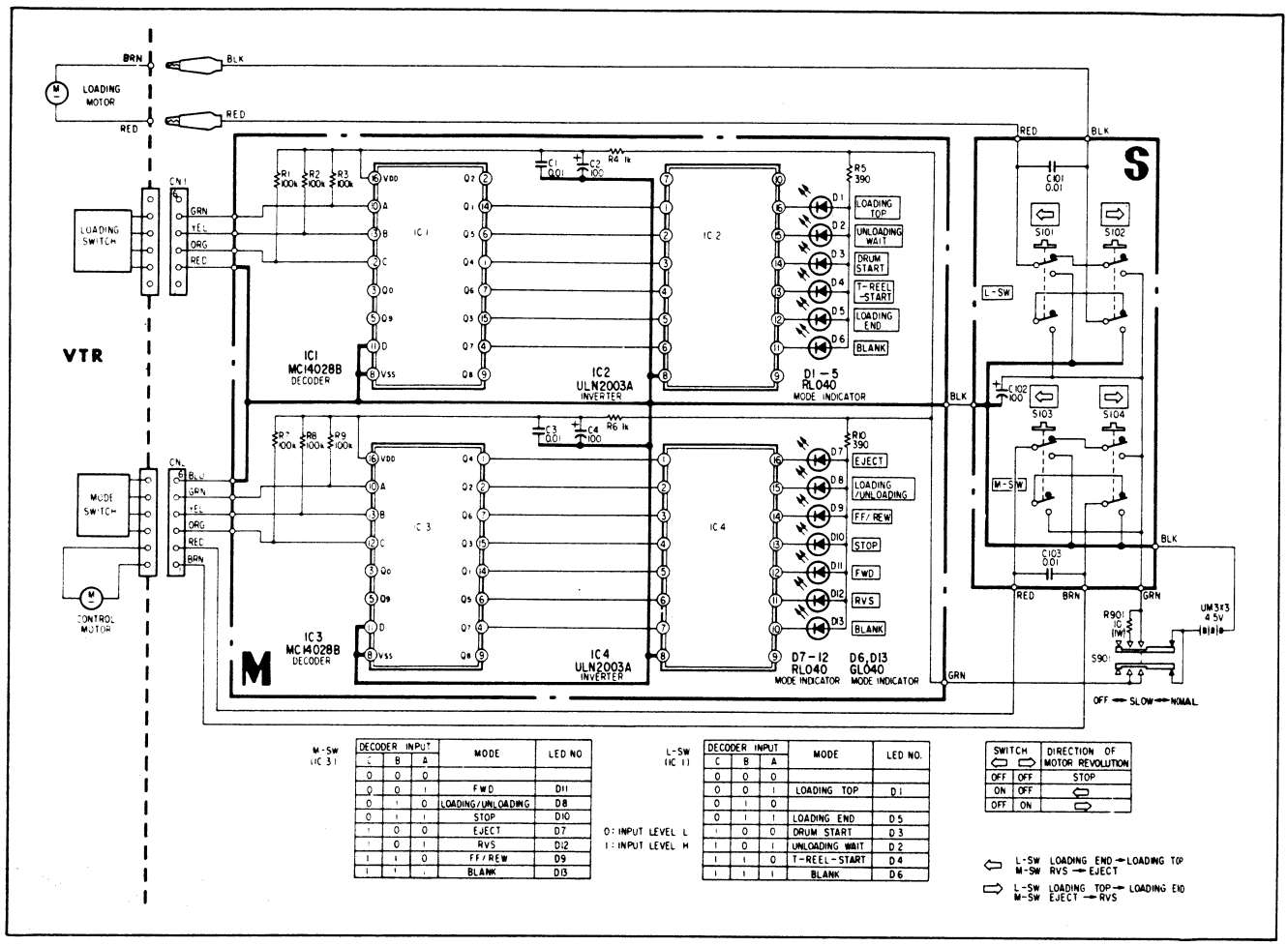


Fig. 1-3.

5. Mode Selector Schematic



DECODER INPUT C	B	A	MODE	LED NO
0	0	0		
0	0	1	FWD	D11
0	1	0	LOADING/UNLOADING	D8
0	1	1	STOP	D10
1	0	0	EJECT	D7
1	0	1	RVS	D12
1	1	0	FF/REW	D9
1	1	1	BLANK	D13

DECODER INPUT C	B	A	MODE	LED NO.
0	0	0		
0	0	1	LOADING TOP	D1
0	1	0		
0	1	1	LOADING END	D5
1	0	0	DRUM START	D3
1	0	1	UNLOADING WAIT	D2
1	1	0	T-REEL-START	D4
1	1	1	BLANK	D6

SWITCH ⇦	⇨	DIRECTION OF MOTOR REVOLUTION
OFF	OFF	STOP
ON	OFF	⇦
OFF	ON	⇨

6. Mode Selector Parts List

Symbol	Part No.	Part Name		
		capacitors		
C1	1-108-579-00	mylar	0.01μF	50V
C2	1-123-333-00	electrolytic	100μF	24V
C3	1-108-579-00	mylar	0.01μF	50V
C4	1-123-333-00	electrolytic	100μF	24V
C101	1-108-579-00	mylar	0.01μF	50V
C103	1-108-579-00	mylar	0.01μF	50V
		Diodes		
D1	8-179-812-31	diode	RL040	
D2	8-179-812-31	diode	RL040	
D3	8-179-812-31	diode	RL040	
D4	8-179-812-31	diode	RL040	
D5	8-179-812-31	diode	RL040	
D6	8-719-812-33	diode	GL040	
D7	8-179-812-31	diode	RL040	
D8	8-179-812-31	diode	RL040	
D9	8-179-812-31	diode	RL040	
D10	8-179-812-31	diode	RL040	
D11	8-179-812-31	diode	RL040	
D12	8-179-812-31	diode	RL040	
D13	8-719-812-33	diode	GL040	

Symbol	Part No.	Part Name		
		IC		
IC1	8-759-240-28	IC	TC4028BP	
IC2	8-759-120-03	IC	μPA2003A	
IC3	8-759-240-28	IC	TC4028BP	
IC4	8-759-120-03	IC	μPA2003A	
		resistor		
R1	1-247-179-00	carbon	100K	1/4W
R2	1-247-179-00	carbon	100K	1/4W
R3	1-247-179-00	carbon	100K	1/4W
R4	1-247-131-00	carbon	1K	1/4W
R5	1-247-121-00	carbon	390	1/4W
R6	1-247-131-00	carbon	1K	1/4W
R7	1-247-179-00	carbon	100K	1/4W
R8	1-247-179-00	carbon	100K	1/4W
R9	1-247-179-00	carbon	100K	1/4W
R10	1-247-121-00	carbon	390	1/4W
R901	1-214-594-00	metal film	10	1W

2. PERIODIC CHECK AND MAINTENANCE

Please perform the following periodic checks and maintenance in order to obtain optimum set function and performance, and to keep the mechanism and tape in good condition. Also, perform the maintenance below after repair, regardless of the length of time the set has been used by the user.

2-1. CLEANING OF ROTARY DRUM ASSEMBLY

1) Press a chamois cloth (Ref. No. J-2) soaked in cleaning fluid (Ref No. J-1) lightly against the rotary drum assembly, and slowly rotate the rotary upper drum assembly counterclockwise by hand to clean.

Note: Do not use the power supply to rotate the motor, and do not rotate the drum clockwise by hand.
Also, there is a danger of damaging the head tip if the chamois cloth is moved vertically relative to the head tip, so please follow the instruction above for cleaning.

2-2. CLEANING OF TAPE PATH

1) Place the cassette compartment assembly in EJECT state, and clean the tape path (No. 1 ~ No. 11 guides, capstan shaft, pinch roller) with a chamois cloth soaked in cleaning fluid. (See Fig. 2-1)

2-3. CLEANING OF DRIVE SYSTEM

1) Clean the drive system (timing belt, surface of reel tables) with a chamois cloth soaked in cleaning fluid.

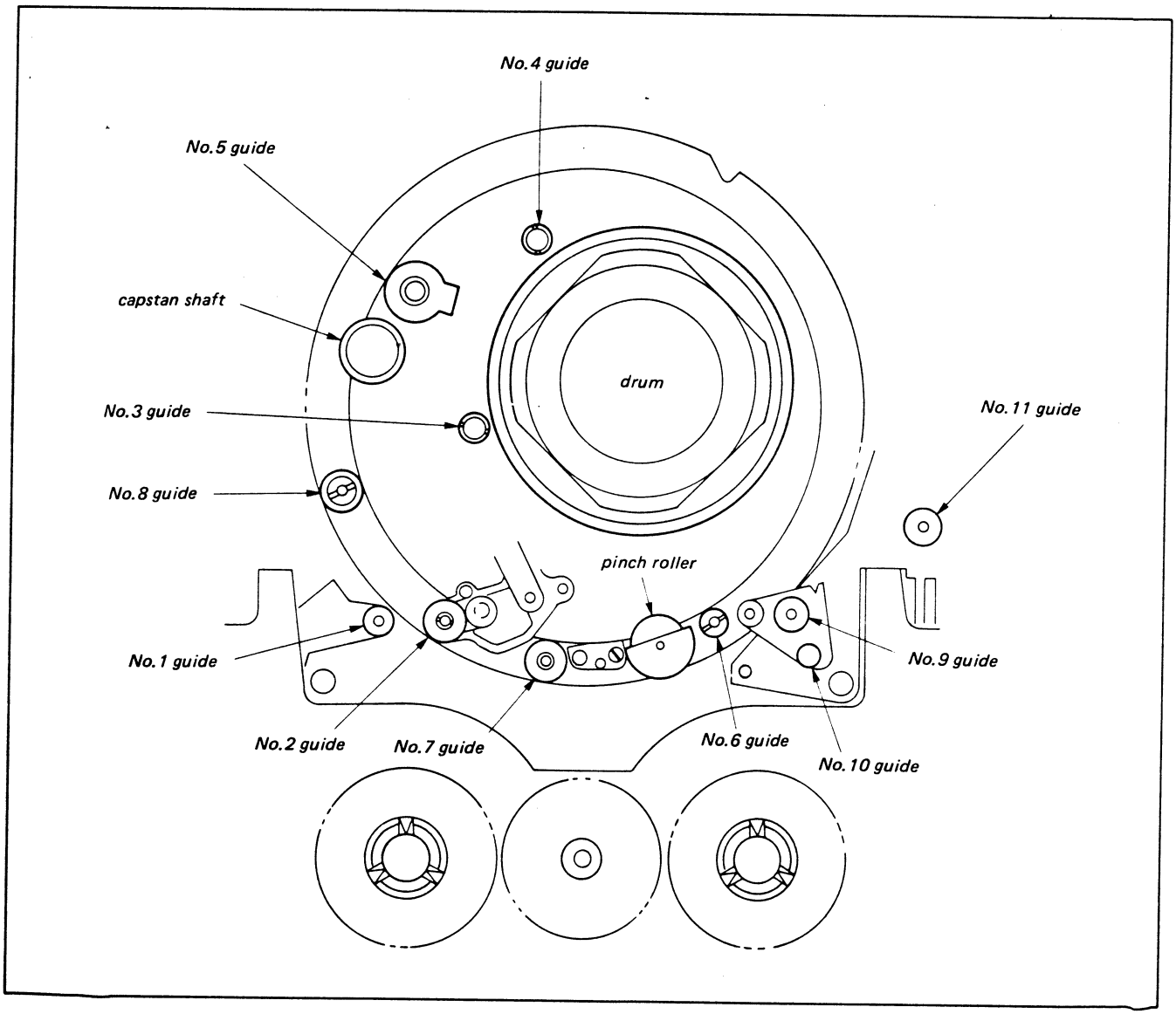


Fig. 2-1.

2-4. PERIODIC CHECK

Perform following according to number of hours of use.

	Location	Hours of Use (H)										Notes
		500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	
Tape Path	Cleaning of tape path surface	○	○	○	○	○	○	○	○	○	○	Be careful of oil
	Cleaning and degaussing of rotary drum assembly	○	○	○	○	○	○	○	○	○	○	Be careful of oil
Drive System	L motor belt	○	○	○	○	○	○	○	★	○	○	3-686-546-01 Replace here, or every two years.
	Timing belt	○	○	○	○	○	○	○	○	○	○	3-686-646-01
	Plunger solenoid	—	—	—	○	—	—	—	○	—	—	1-454-377-11
	Capstan shaft bearing	—	◎	—	◎	—	◎	—	◎	—	◎	Be careful not to get oil on the tape path surface.
	Loading motor	—	☆	—	☆	—	☆	—	☆	—	☆	8-835-121-01
	Control motor	—	☆	—	☆	—	☆	—	☆	—	☆	8-835-110-01
Performance Check	Abnormal noise	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Back tension measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake system	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD, RVS torque measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

Note: When performing an overhaul, refer to the items above when replacing parts.

Note: Sony Oil

- Be sure to use Sony Oil. (There is a danger of trouble occurring if a different viscosity is used.)
  Sony Oil: Parts No. 7-611-088-61 (Mitsubishi Diamond Oil #400)
- Be sure to use clean oil when lubricating the shaft bearing, because there is a danger of wear and burning if dirty oil is used.
- One drop of oil means the amount which sticks to a 2 mm diameter rod, as shown in Fig. 2-2.

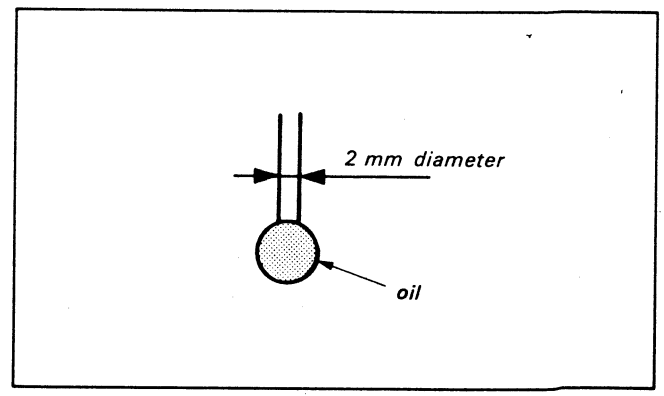


Fig. 2-2.

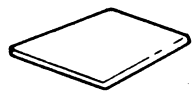
2-5. SERVICE JIG TABLE

Ref. No.	Name	Part No.	Jig	Use, Notes
J-1	Cleaning fluid	Y-2031-001-1	——	
J-2	Chamois cloth	2-034-697-00	——	
J-3	Head degausser	Commercially sold	——	
J-4	Small adjustment mirror, spare mirror	J-6080-029-A J-6080-030-1	SL-5052	Tape path
J-5	Alignment tape (WR5-1C)	8-967-995-06		Tape path
J-6	Dial tension gauge	J-6080-827-A		torque measurement
J-7	Tension measurement reel	J-6080-831-A		with ϕ30 tape
J-8	Tension measurement reel	J-6080-832-A		with ϕ16 string
J-9	No. 10 gear phase jig	J-6080-823-A	GD-2047	
J-10	Rotary drum jig	(packed with the repair rotary upper drum)		
J-11	No. 6 guide lock screwdriver	J-6080-826-A		
J-12	FWD, RVS winding torque cassette	J-6080-824-A	GD-2089	
J-13	Mode selector	J-6080-825-A		for all models
J-14	Video head checker	7-732-080-01	SL-5151	

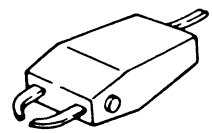
Other equipment: Oscilloscope
Analog tester (20 kΩ)

J-1

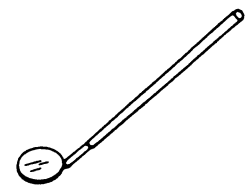
J-2



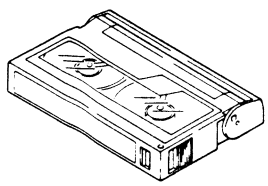
J-3



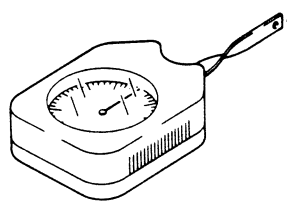
J-4



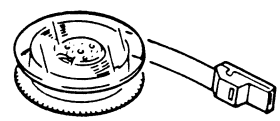
J-5



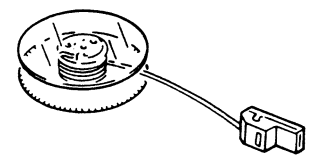
J-6



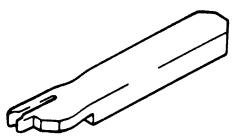
J-7



J-8



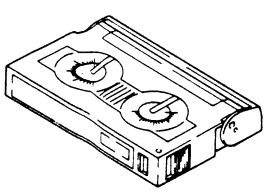
J-9



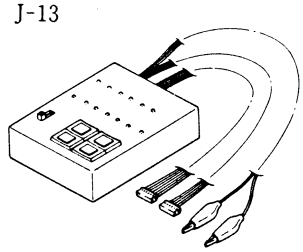
J-10 (Packed with repair use rotary upper drum)

J-11

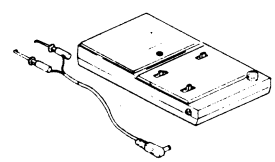
J-12



J-13



J-14



3. MECHANICAL CHECK, ADJUSTMENT AND REPLACEMENT

Note: Use the mode selector (Ref No. J-13) for this mechanical check, adjustment and replacement.
The mode inside the ☐ is the mode set by pressing the mode selector button.

3-1. S REEL TABLE ASSEMBLY

1. Removal

1) Remove the cassette compartment assembly according to item Section 2, 2-3.
2) Set to [FF/REW] mode.
3) Remove screw ❶ and reel table stopper ❷.
4) Remove the REV brake assembly ❸.
5) Remove the S reel table assembly ❹. (Fig. 3-1)

Note: Be sure to hold the upper reel hook when removing. (See Fig. 3-1)

2. Mounting

1) Place a half drop of oil on the shaft ❺ upper surface.
2) Move the S main brake assembly ❻ in the direction of arrow Ⓐ.
3) Mount the S reel table assembly ❹, being careful not to hit the tension regulator band assembly ❼.
4) Mount the REV brake assembly ❸.
5) Mount the reel table stopper ❷ and tighten with screw ❶. (See Fig. 3-1)
6) Set to [LOADING/UNLOADING] mode.
7) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-3. in reverse.

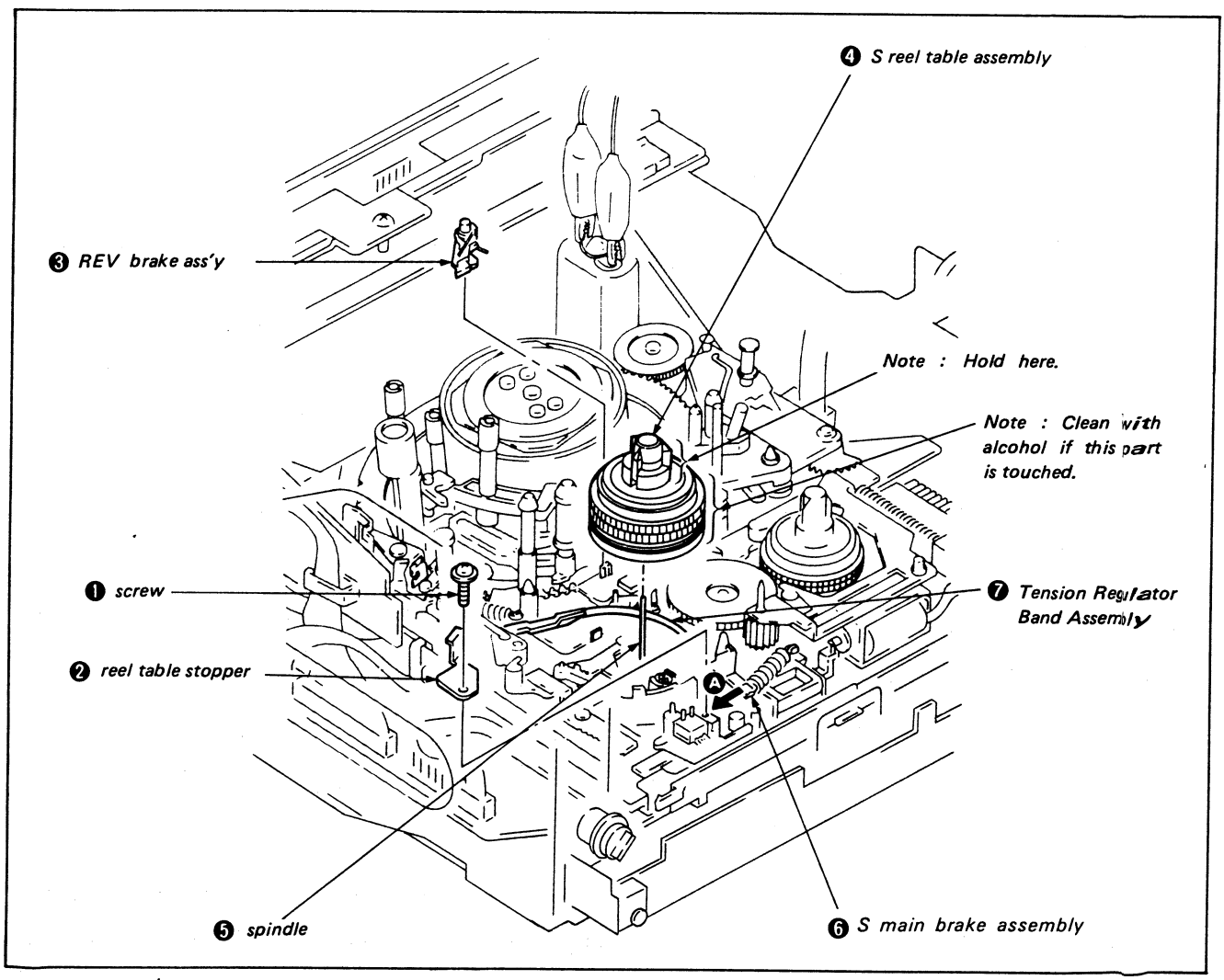


Fig. 3-1.

3-2. T REEL TABLE ASSEMBLY

1. Removal

1) Remove the cassette compartment assembly according to item Section 2, 2-3.
2) Set to [UNLOADING WAIT] mode.
3) Place the spring ❷ on the T.S brake assembly ❶ on the hook on the lock slider assembly.
4) Remove the stopper washer ❸ and the T soft brake assembly ❶.
5) Set to [EJECT] mode.
6) Move drive gear (B) assembly ❹ in the direction of arrow Ⓐ.
7) Remove T reel table assembly ❺. (See Fig. 3-2)

Note: Be sure to hold the upper reel hook when removing. (See Fig. 3-2).

2. Mounting

1) Place a half drop of oil on the shaft ❻ upper surface.
2) Move the drive gear B assembly ❹ in the direction of arrow Ⓐ. (Check [EJECT] mode.)
3) Mount the T reel table assembly ❺.
4) Mount the T soft brake assembly ❶ and the stopper washer ❸.
5) Place the spring ❷ on the T.S brake assembly ❶ hook. (See Fig. 3-2)
6) Set to [LOADING TOP], [LOADING/UNLOADING] mode.
7) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-3. in reverse.

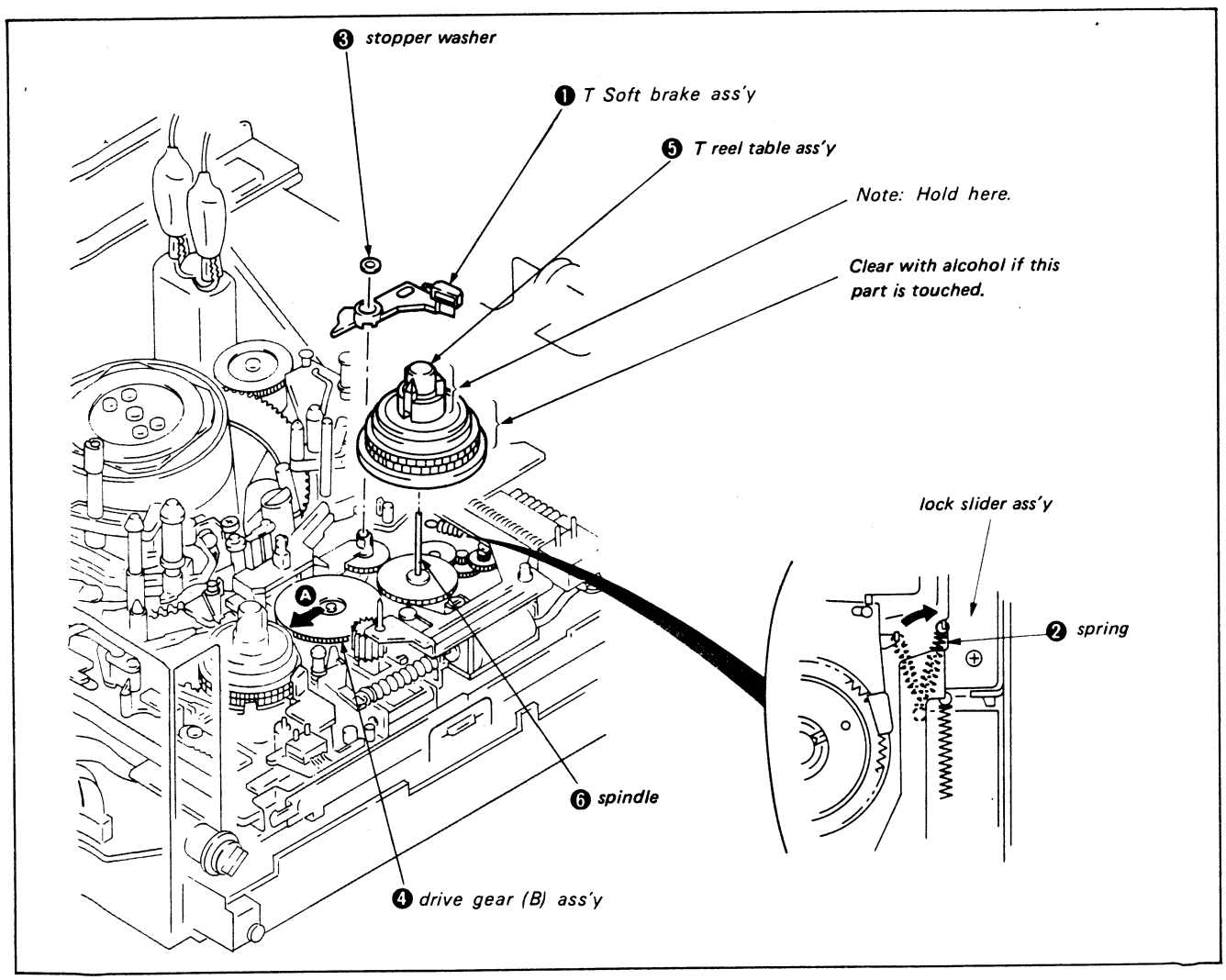


Fig. 3-2.

3-3. PINCH PRESS ARM ASSEMBLY

1. Removal

1) Place the spring ❶ on the pinch press arm assembly ❷.
2) Remove the stopper washer ❸ and the pinch press arm assembly ❷. (See Fig. 3-3)

2. Mounting

1) Place a half drop of oil on shaft ❹.
2) Mount the pinch press arm assembly ❷ and the stopper washer ❸.
3) Place the spring ❶ on the tension regulator spring assembly ❺. (See Fig. 3-3)

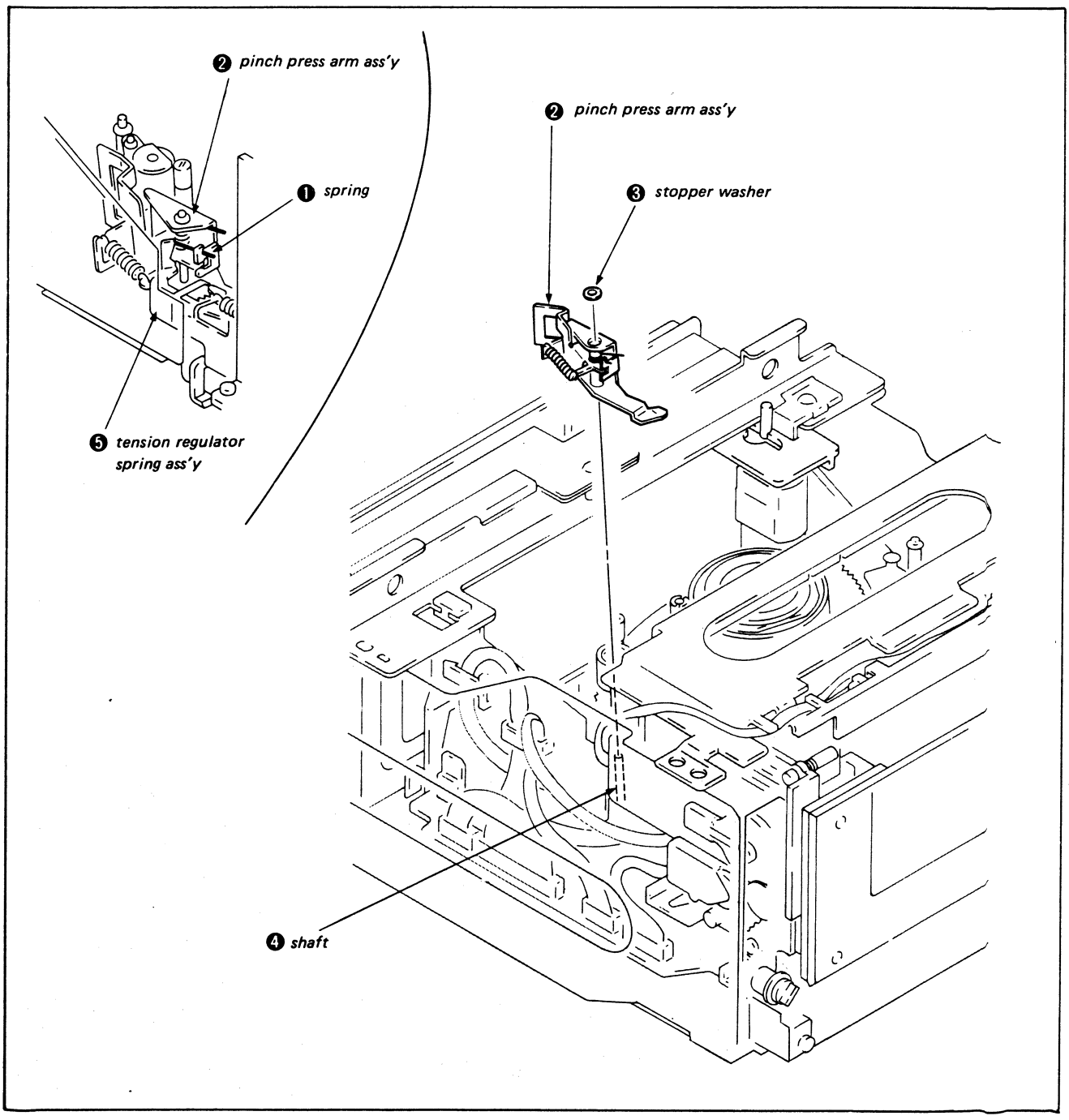


Fig. 3-3.

3-4. TENSION REGULATOR ARM ASSEMBLY

1. Removal

1) Remove the cassette compartment assembly according to item Section 2, 2-3.
2) Change the spring position as described in 3.3, 1. Removal, 1). (See Fig. 3-3)
3) Remove spring ❶. (Note its position.)
4) Remove screw ❷ and the tension regulator spring assembly ❸.
5) Set to FF/REW mode.
6) Remove the tension regulator band assembly hook ❹.
7) Remove the tension regulator arm assembly ❺. (See Fig. 3-4)

2. Mounting

1) Place a half drop of oil on the shaft ❻.
2) Mount the tension regulator arm assembly ❺, placing the tension regulator load arm assembly pin ❼ in the tension regulator arm assembly ❺ cam groove (on the back).
3) Mount the tension regulator band assembly hook ❹. (Do not touch the band or change its shape.)
4) Set to LOADING/UNLOADING mode.
5) Mount the tension regulator spring assembly ❸ and tighten with screw ❷.
6) Replace spring ❶ in its original position and lock the screws. (See Fig. 3-4)
7) Position the spring according to item 3.3, 2. Mounting, 3). (See Fig. 3-3)
8) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-3. in reverse.

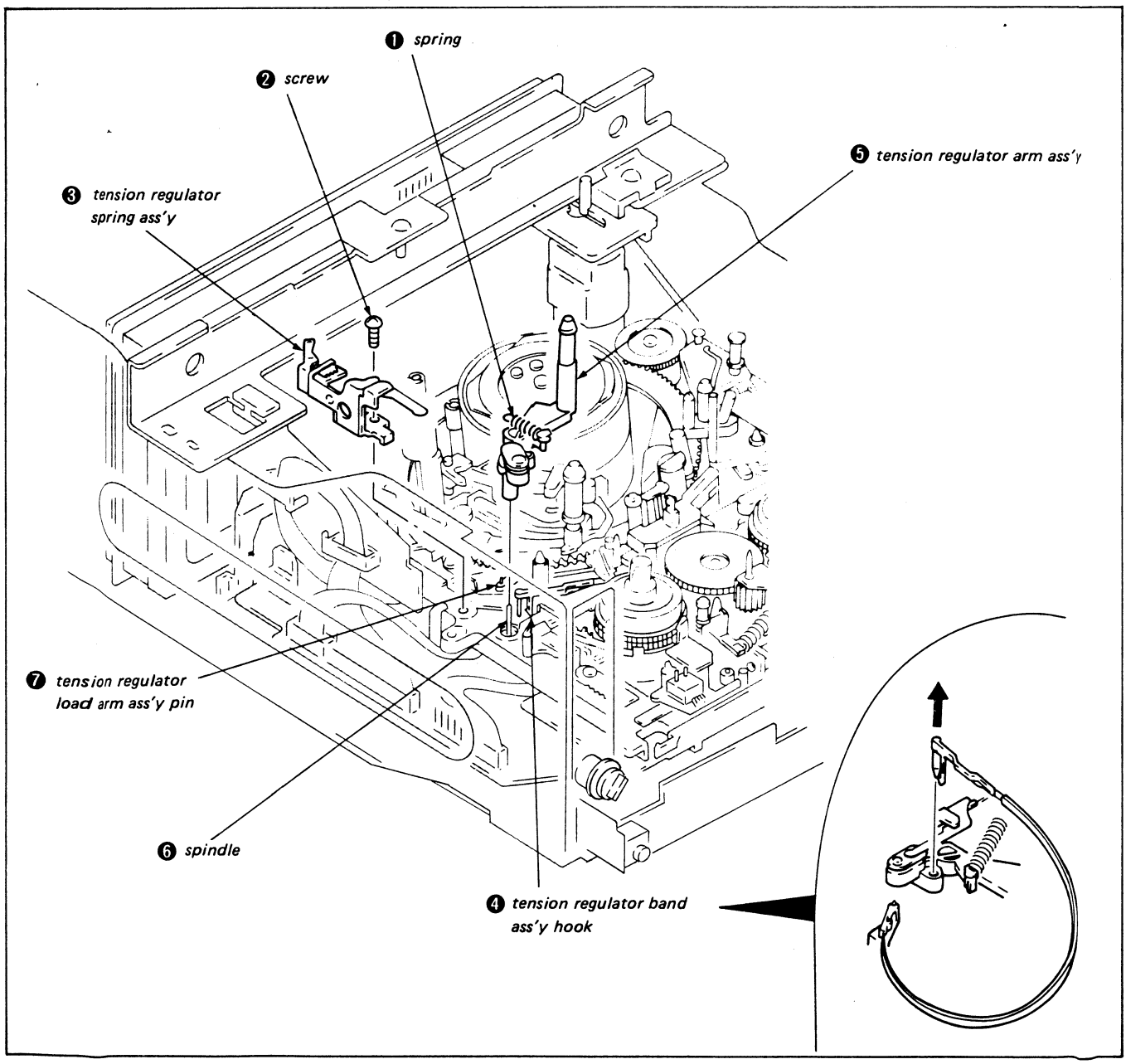


Fig. 3-4.

3-5. TENSION REGULATOR BAND ASSEMBLY

1. Removal

1) Remove the S reel table assembly according to item 3-1, 1. Removal. (See Fig. 3-1)
2) Remove the band arm hook ❶.
3) Remove hook ❷ and the tension regulator band assembly ❸. (See Fig. 3-5)

2. Mounting

1) Mount the tension regulator band assembly ❸. (Do not touch the band or change its shape.)
2) Fit on the band arm hook ❶. (Fig. 3-5)
3) Mount the S reel table assembly according to 3-1, 2. Mounting. (See Fig. 3-1)
4) Perform 3-21. FWD Back Tension Adjustment.

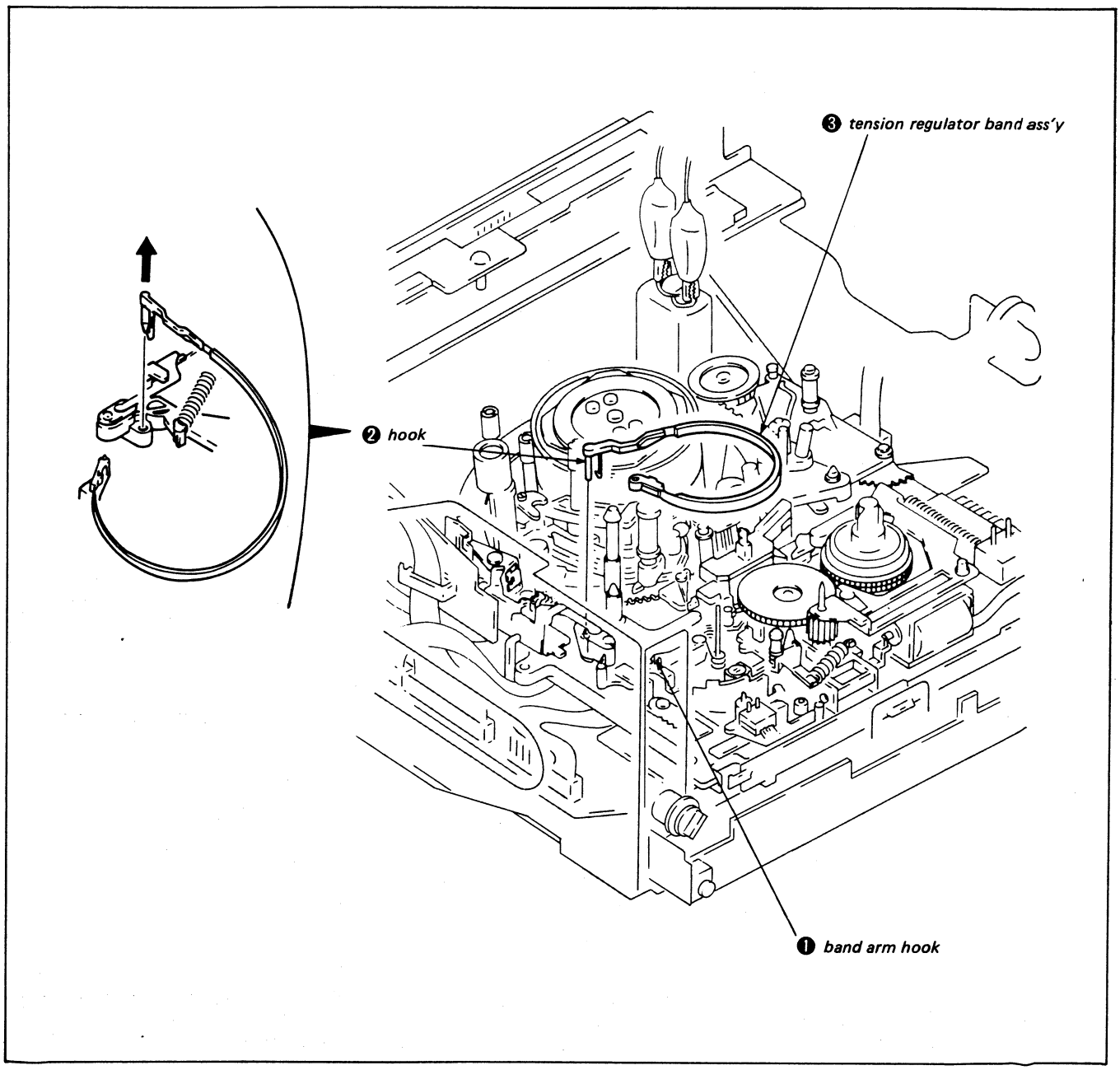


Fig. 3-5.

3-6. LOADING MOTOR ASSEMBLY

1. Removal

1) Open the MD-8D board ❶ according to item Section 2, 2-8.
2) Remove connector ❷ from MD-8D board ❶.
3) Remove L motor belt ❸.
4) Remove cap cover ❹.
5) Remove the two screws ❺ and the loading motor assembly ❻. (See Fig. 3-6)

2. Mounting

1) Remove the loading motor shield plate from the loading motor which has been mounted on to the set.
2) Wind the loading motor shield plate removed in step 1) around the loading motor assembly ❻. (Refer to mounting diagram)
3) Mount the loading motor assembly ❻ and tighten the two screws ❺.
4) Mount the cap cover ❹.
5) Mount L motor belt ❸. (See Fig. 3-6)
6) Connect connector ❷ to MD-8D board ❶. (See Fig. 3-6)
7) Mount MD-8D board ❶ by following the procedure in item Seciton2, 2-8. in reverse.

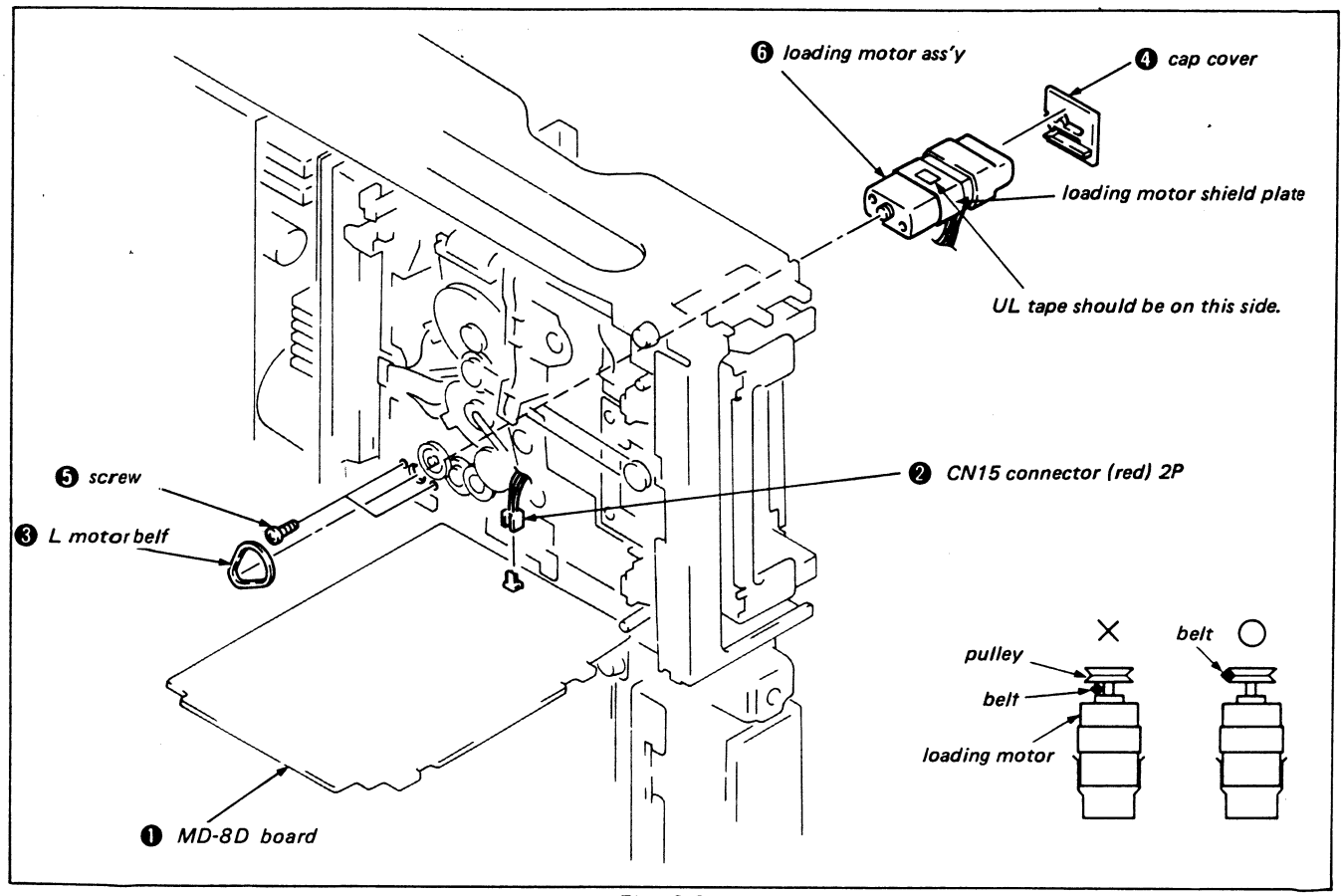


Fig. 3-6.

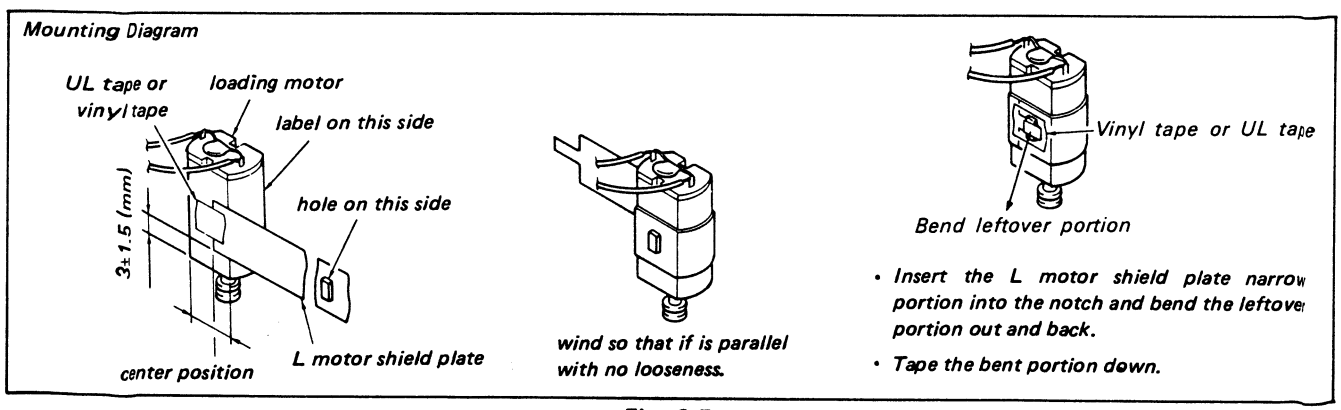


Fig. 3-7.

3-7. LOADING RING ASSEMBLY

1. Removal

1) Remove the mechanism as described in item Section 2, 2-12.
2) Operate the mode selector, and move the guide base assembly ❶ until just before lock, and the entrance guide assembly ❷ until just before lock where the ring stopper ❸ screw is visible. (Do not move loading ring assembly ⓫ .
3) Remove the stopper washer ❹ and remove No. 10 gear assembly ❺ .
4) Remove screw ❻ and the roller stopper ❼ and ring spacer ❽ .
5) Remove the two screws ❾ and the ring stopper ❸ and ring spacer ❿ .
6) Remove the loading ring assembly as shown by arrow Ⓐ . (Refer to Fig. 3-8)

Note: Be careful that the loading ring assembly ⓫ does not touch the drum when it is removed.

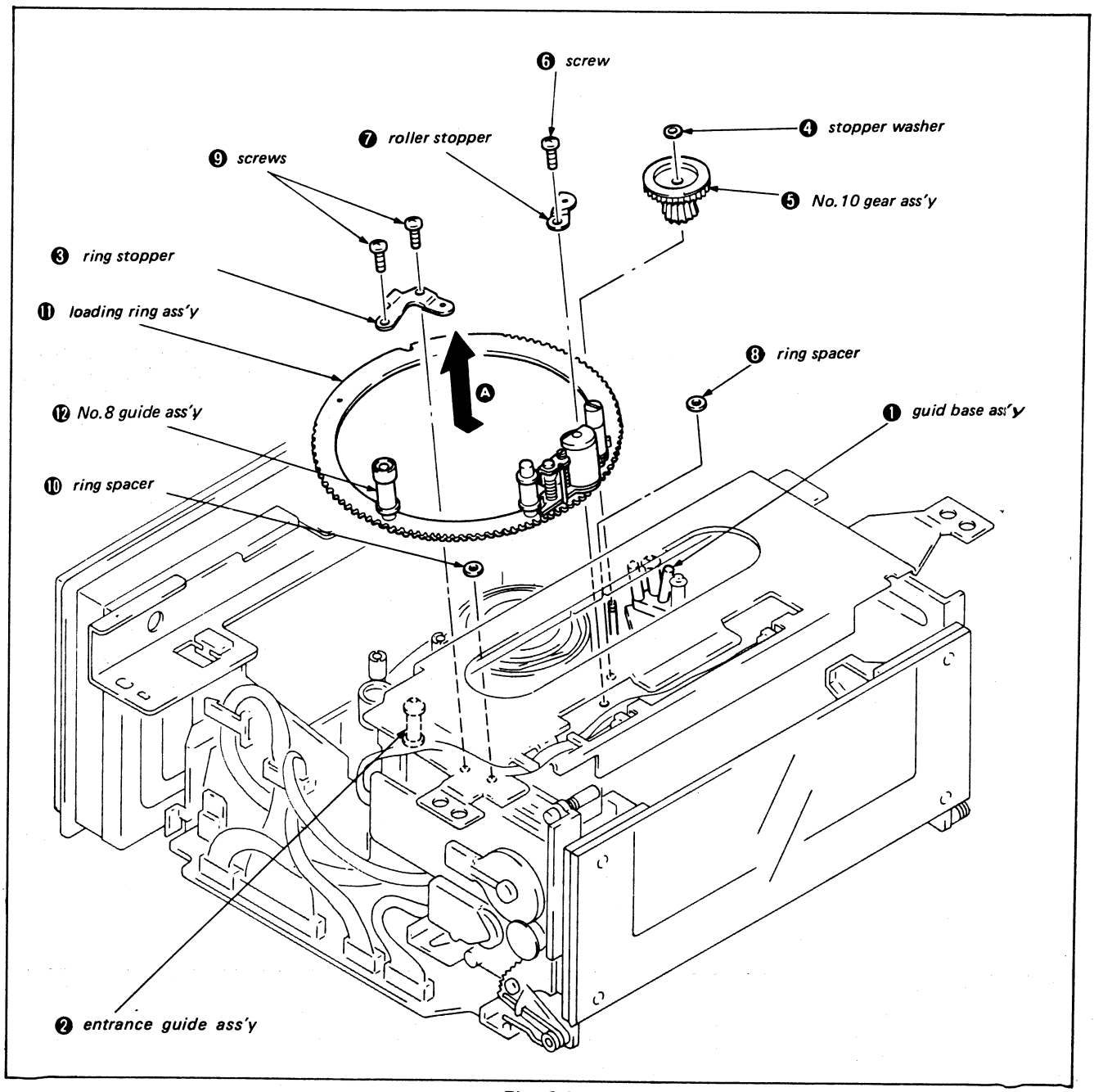


Fig. 3-8.

2. Mounting

1) Mount the loading ring assembly ⓫ so that it is in unthreaded state (pinch roller arm assembly is on the front panel side). (Check that is in the state in step 2) under Removal.)
2) Mount the ring spacer ⓾ and ring stopper ❸ and tighten with the two screws ❾. (No. 8 guide assembly ⓬ should be closer to the front panel than the ring stopper 3 .)
3) Mount the ring spacer ❽ and roller stopper ❼ and tighten with screw ❻. (Check that the loading ring assembly matches the three ring spacers.)
4) Place a half drop of oil on the shaft ⓭ . (See Fig. 3-8)
5) Check that the protrusions on the drive changer assembly are in the indentations of the L-SW assembly and insert the No. 10 gear phase jig (Ref No. J-9). (See Fig. 3-9)
6) Mount No. 10 gear assembly ❺ and stopper washer ❹ while pushing the No. 8 guide assembly ⓬ against the ring stopper ❸.
7) Pull out the No. 10 gear phase jig.
8) Set to [LOADING TOP] mode. (See Fig. 3-8)
9) Mount the mechanism by following the procedure in Section 2, 2-12. in reverse.

Note: Be sure to perform 4. Tape Path Adjustment after mounting.

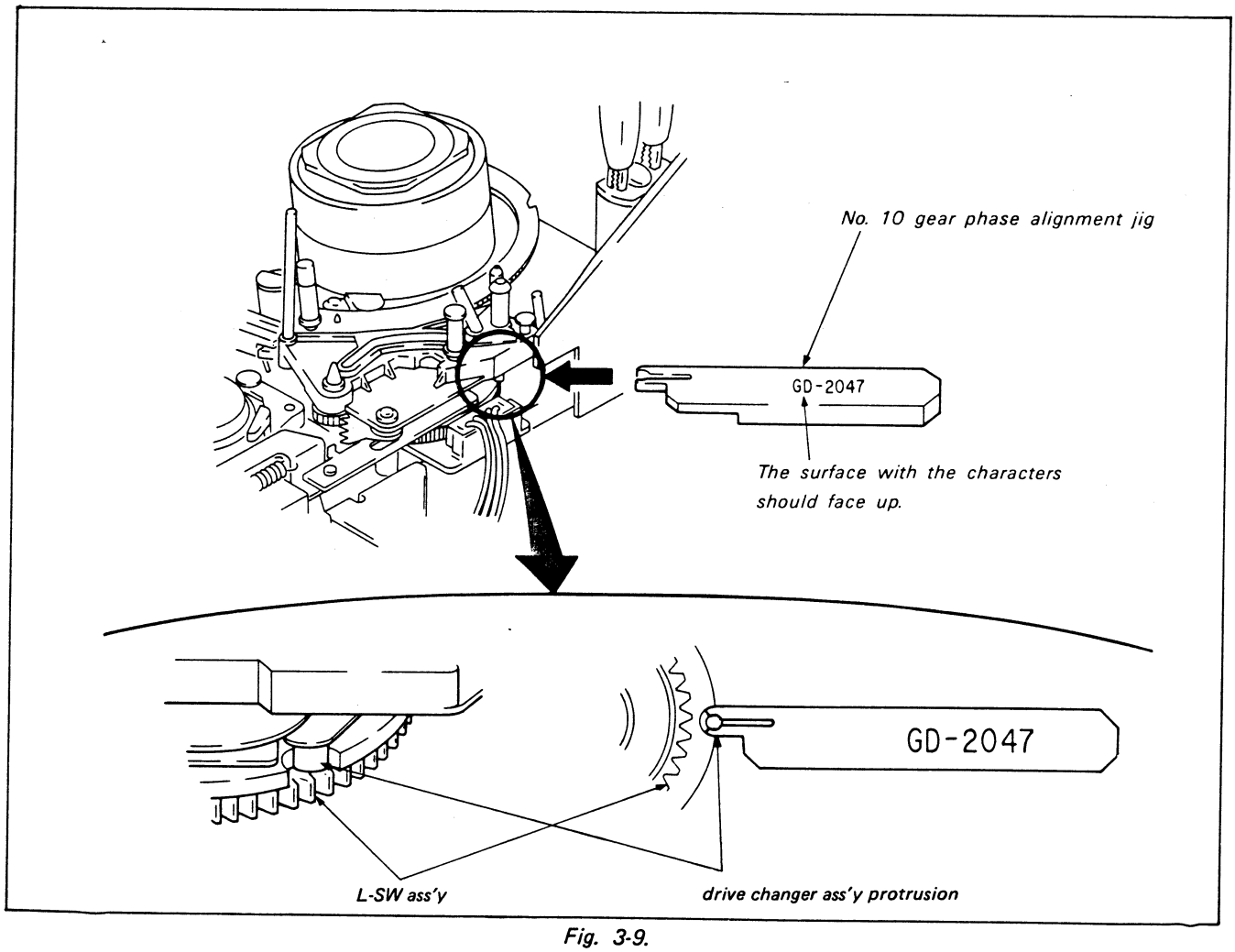


Fig. 3-9.

3-8. PINCH ROLLER ASSEMBLY

1. Removal

1) Remove the loading ring assembly as described in 3-7., 1. Removal. (See Fig. 3-8)
2) Remove stopper washer ❶. (See Fig. 3-10)
3) Change the position of the spring ❸ on No. 7 guide assembly ❷. (See Fig. 3-11)
4) Rotate pinch roller arm assembly ❹ in the direction of arrow Ⓐ. (See Fig. 3-12)
5) Remove pinch roller arm assembly ❹ in the direction of arrow Ⓑ. (See Fig. 3-13)
6) Remove spring ❸. (See Fig. 3-14)

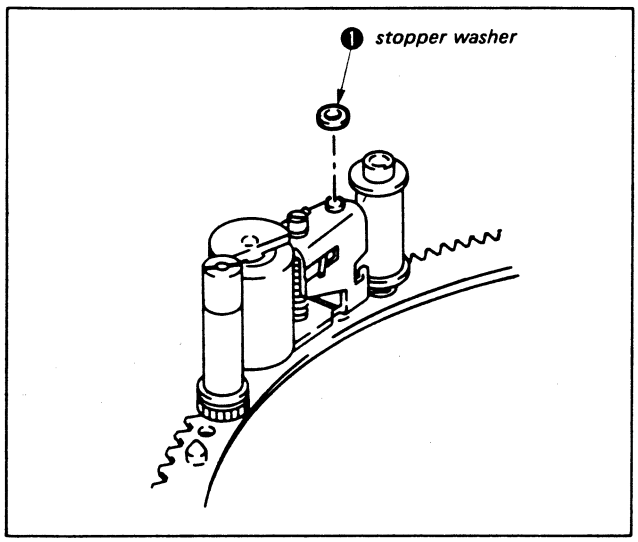


Fig. 3-10.

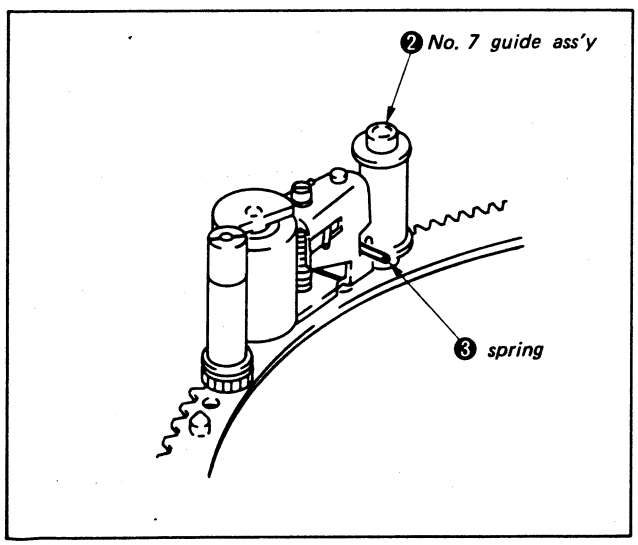


Fig. 3-11.

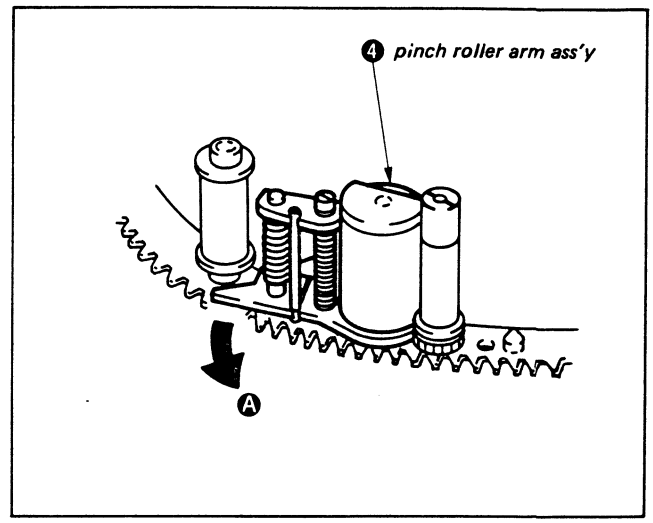


Fig. 3-12.

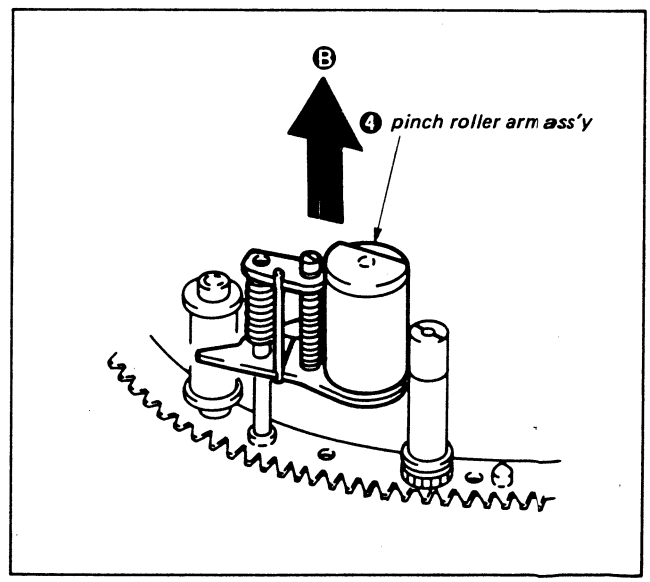


Fig. 3-13.

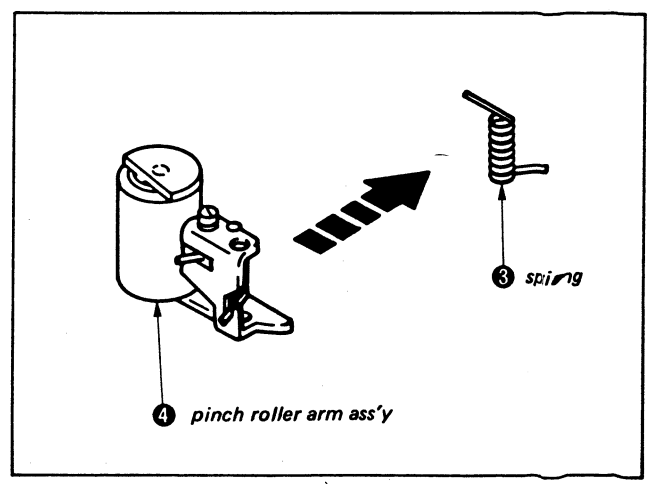


Fig. 3-14.

2. Mounting

1) Position spring ❸ (See Fig. 3-15)
2) Insert the end of a paper clip ❺ or other thin rod inside the pinch roller arm assembly hole ❻. (See Fig. 3-16, 3-17)
3) Push the end of the clip ❺ through to contact the loading ring assembly shaft ❼ and mount the pinch roller arm assembly ❹. (See Fig. 3-18, 3-19)
4) Place the spring on No. 7 guide assembly ❷. At this time, check that the spring is hooked on section Ⓒ. (See Fig. 3-20)
5) Mount the stopper washer ❶. (See Fig. 3-21)
6) Mount the loading ring assembly according to 3-7., 2. Mounting. (See Fig. 3-8)

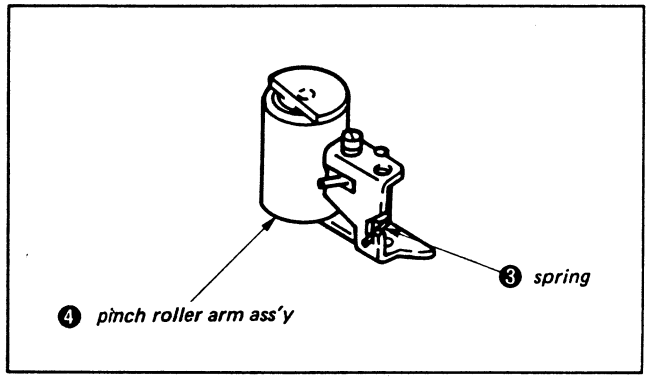


Fig. 3-15.

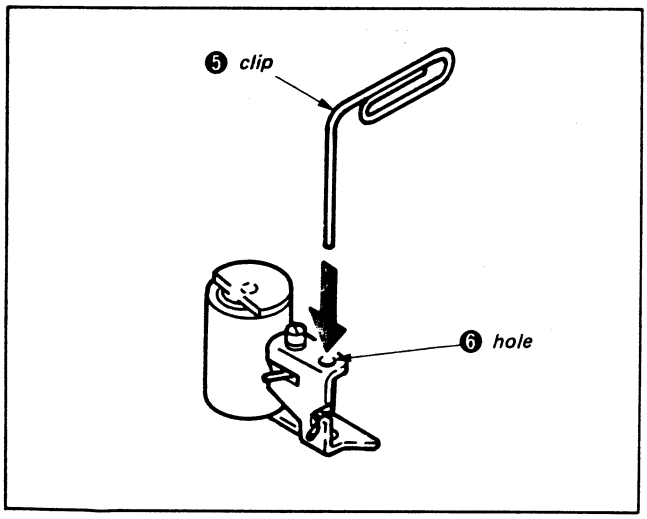


Fig. 3-16.

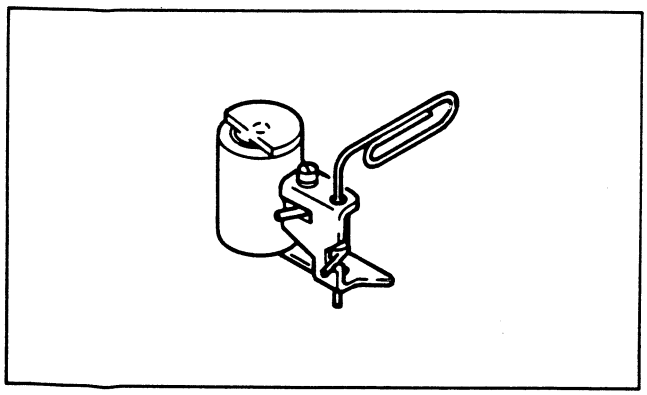


Fig. 3-17.

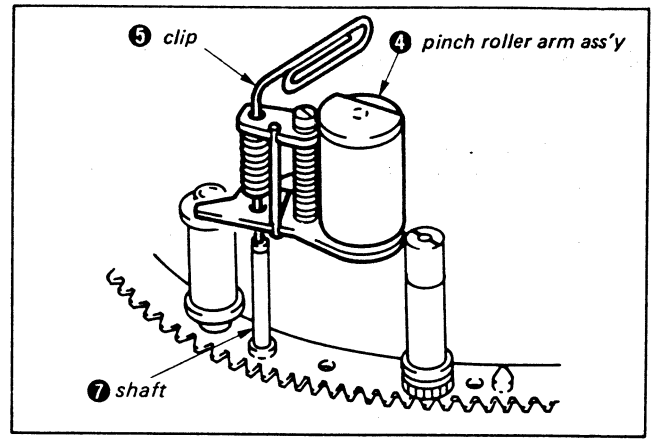


Fig. 3-18.

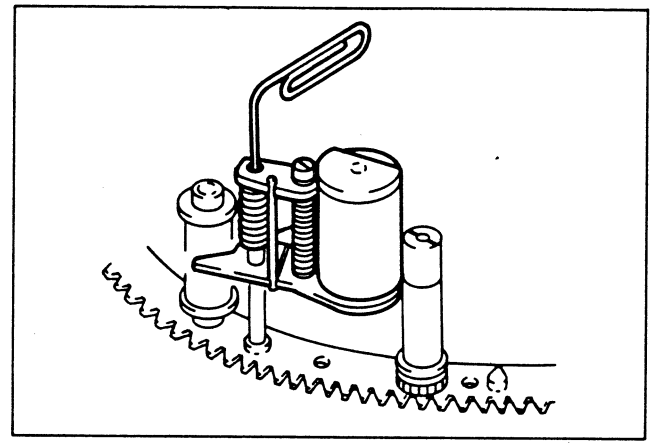


Fig. 3-19.

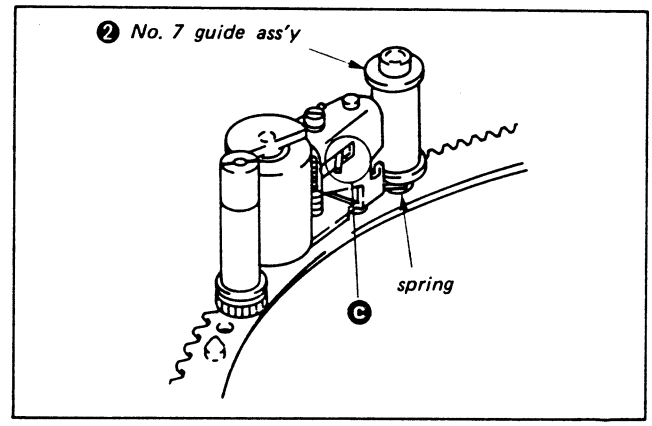


Fig. 3-20.

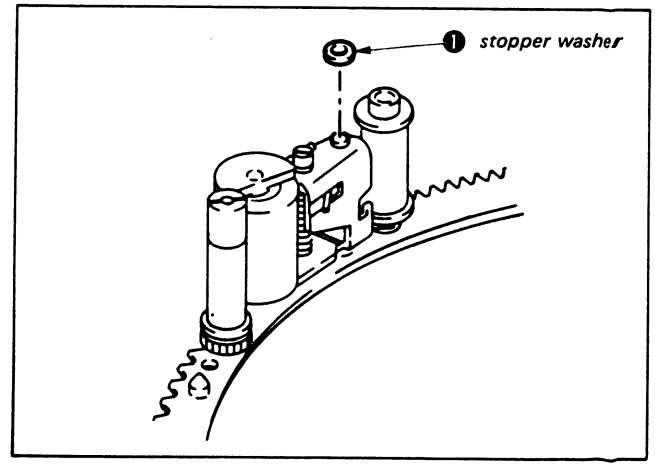


Fig. 3-21.

3-9. SLANT GUIDE ASSEMBLY

1. Removal

1) Remove the cassette compartment assembly according to item Section 2, 2-3.
2) Remove the loading ring assembly according to 3-7., 1. Removal. (See Fig. 3-8)
3) Remove screw ❶ and E ring ❷.
4) Remove the slant guide assembly ❸. (Refer to Fig. 3-22)

2. Mounting

1) Operate the mode selector, and line up the right edge of the L slider assembly and the right edge of the lock slider assembly. (See Fig. 3-23)
2) Set the slant guide assembly guide base assembly in unthreaded state (guide base assembly is on front panel side) and mount. (See Fig. 3-24)

Note: At this time, confirm the engagement position of the slant guide drive gear and L slider assembly gear. (Fig. 3-28)

3) Mount the E ring ❷ and tighten screw ❶. (Fig. 3-22)
4) Put in the state in 3-7., 1. Removal, 1).
5) Mount the loading ring assembly according to 3-7., 2. Mounting (Fig. 3-8)
6) Mount the cassette compartment assembly by following the procedure in Section 2, 2-3. in reverse.

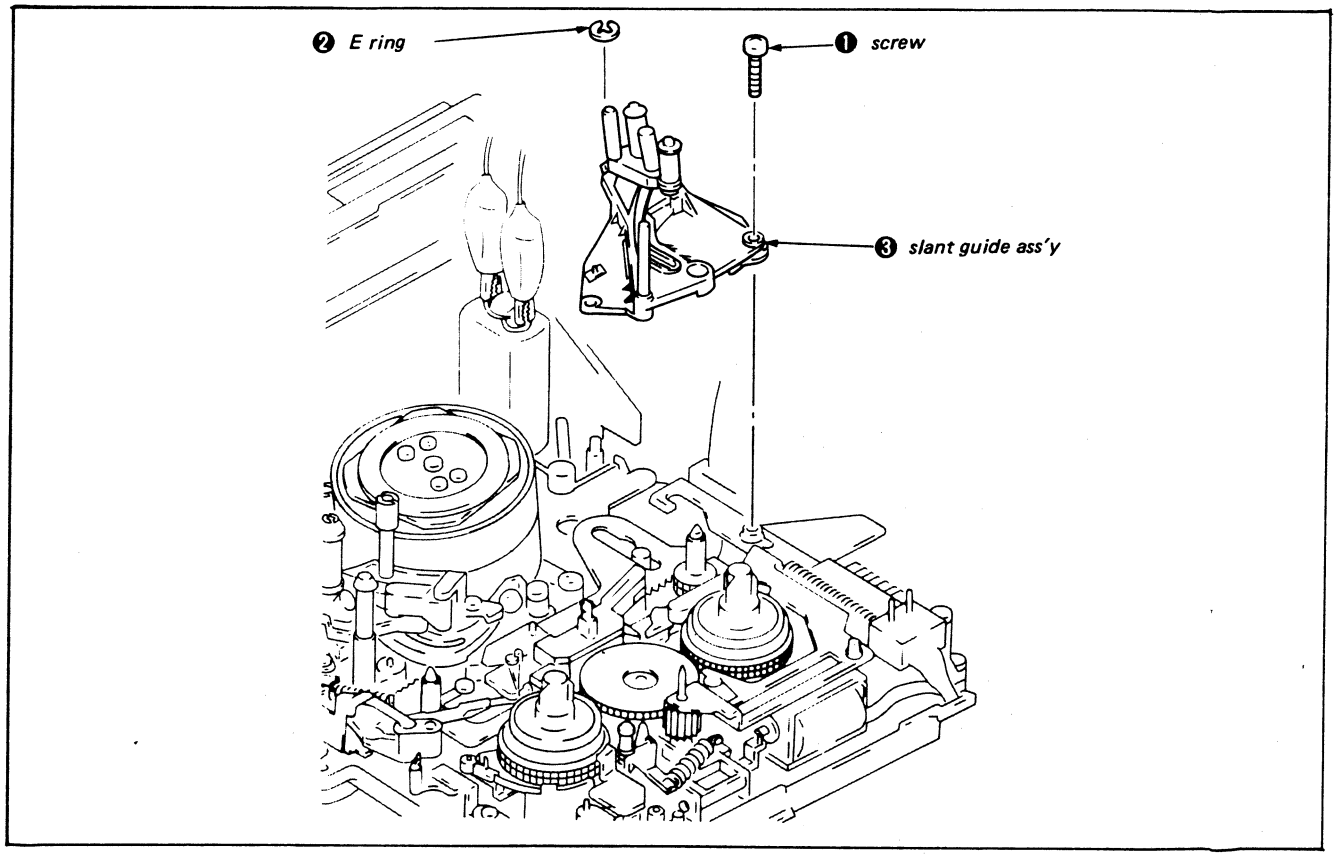


Fig. 3-22.

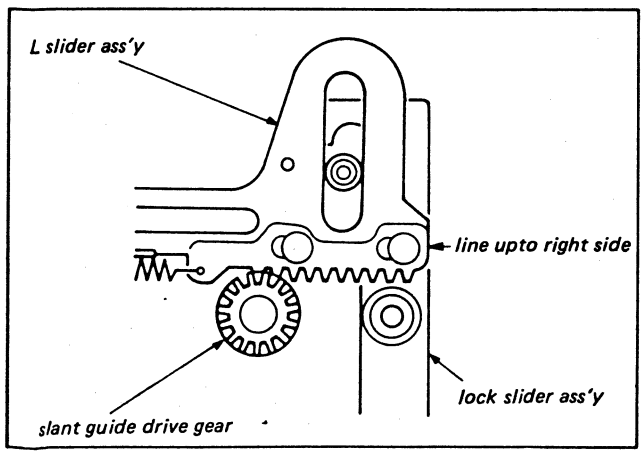


Fig. 3-23.

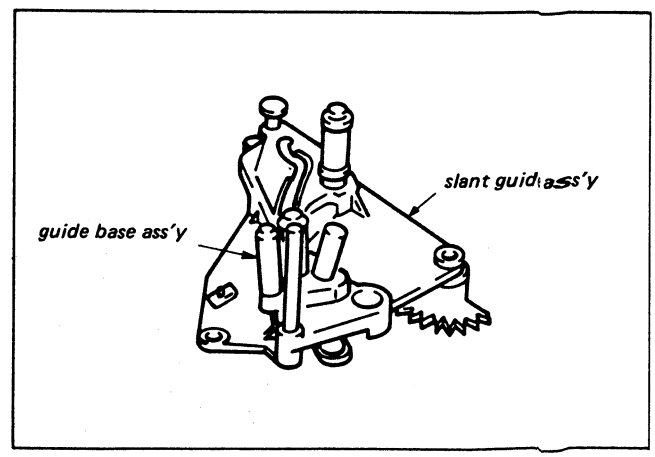


Fig. 3-24.

3-10. ENTRANCE GUIDE ASSEMBLY (No. 2 GUIDE ASSEMBLY)

1. Removal

1) Turn the rotary upper drum counterclockwise and separate the head portion from the entrance guide assembly ❶.
2) Remove the two screws ❷.
3) Remove No. 3 guide guide nut ❸, and remove guide flange ❹, guide ❺ and coil spring ❻.
4) Remove the entrance guide assembly ❶. (Fig. 3-25)

2. Mounting

1) Engage the entrance guide assembly and L slider assembly so that the part without teeth Ⓐ on the bottom of the entrance guide assembly and the part without teeth Ⓑ on the L slider assembly match.
2) Mount the coil spring ❻, guide ❺ and guide flange ❹ in that order, then temporarily tighten the guide nut ❸.
3) Tighten the two screws ❷. (Fig. 3-25)

Note: Be sure to perform 4. Tape Path Adjustment after mounting.

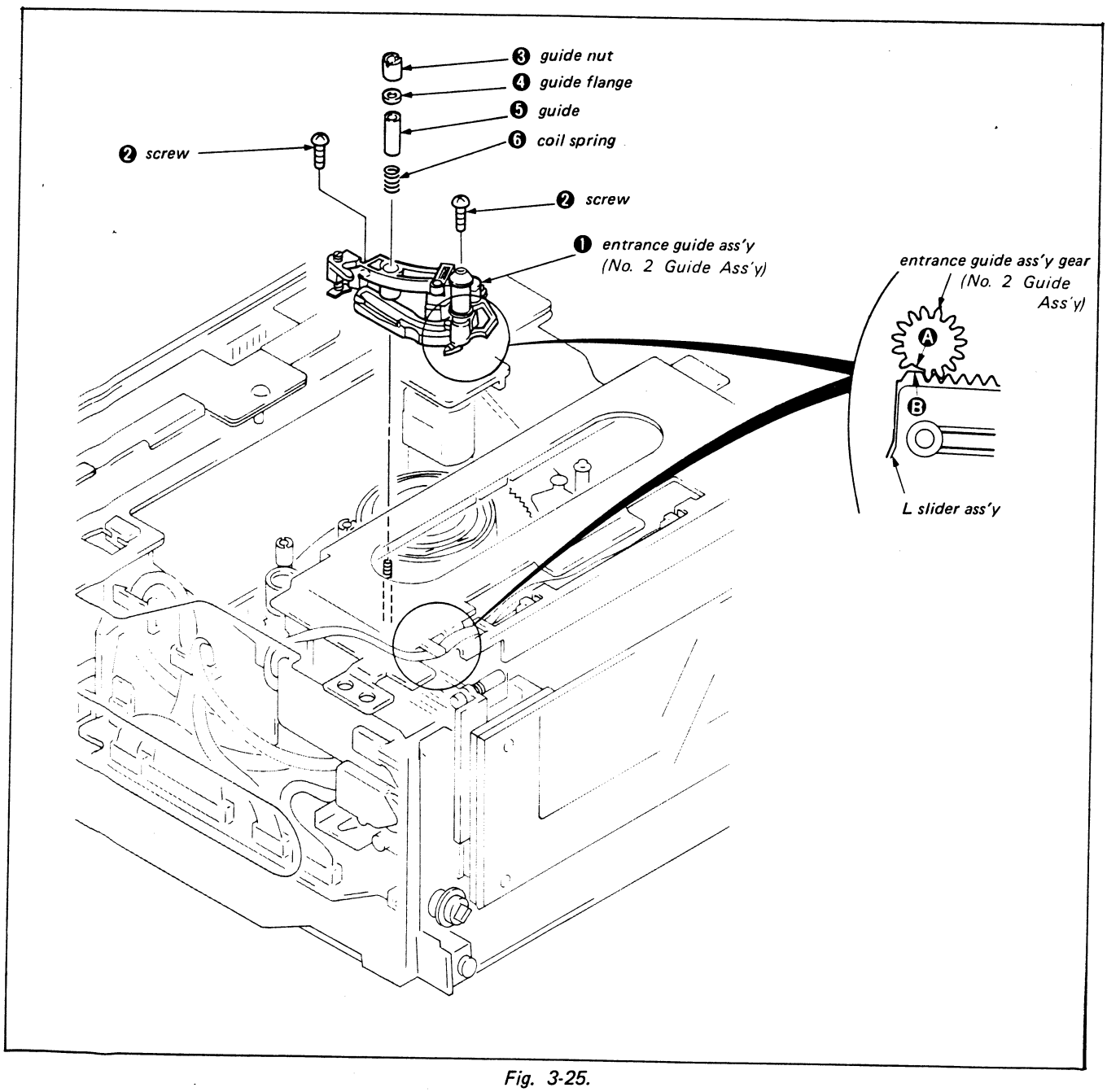


Fig. 3-25.

3-11. L SLIDER ASSEMBLY

1. Removal

1) Remove the slant guide assembly according to 3-9., 1. Removal.
2) Remove the entrance guide assembly according to 3-10., 1. Removal.
3) Set to DRUM START mode.
4) Remove slant guide drive gear ❶.
5) Remove the tension regulator load arm assembly ❷ pin from the cam groove of the tension regulator arm assembly. (See Figure 3-4. Tension Regulator Arm Assembly)
6) Remove the two stopper washers ❸.
7) Remove the L slider assembly ❺ while pushing the RL arm assembly protrusion ❹ in the direction of arrow Ⓐ.
8) Remove the stopper washer ❻ and the tension regulator load arm assembly ❷. (Fig. 3-26)

2. Mounting

1) Lubricate the portions indicated in Fig. 3-27.
2) Mount the tension regulator load arm assembly ❷ and the stopper washer ❻. (Fig. 3-26)
3) Mount the L slider assembly ❺ while pushing the RL arm assembly protrusion ❹ in the direction of arrow Ⓐ.
4) Put the tension regulator load arm assembly ❷ pin into the M slider groove. (See Fig. 3-15, M slider)
5) Mount the two stopper washers ❸.
6) Refer to 3-4., 2. Mounting, 2), and place the tension regulator load arm assembly ❷ pin in the tension regulator arm assembly cam groove.
7) Operate the mode selector, and match up the right edge of the L slider assembly and the right edge of the lock slider assembly. (Refer to 3-9, 2. Mounting, 1))
8) Engage the slant guide drive gear so that the notch is 1 tooth away from the L slider assembly left side tooth. (Fig. 3-28)
9) Mount the entrance guide assembly according to 3-10., 2. Mounting.
10) Mount the slant guide assembly according to 3-9., 2. Mounting.

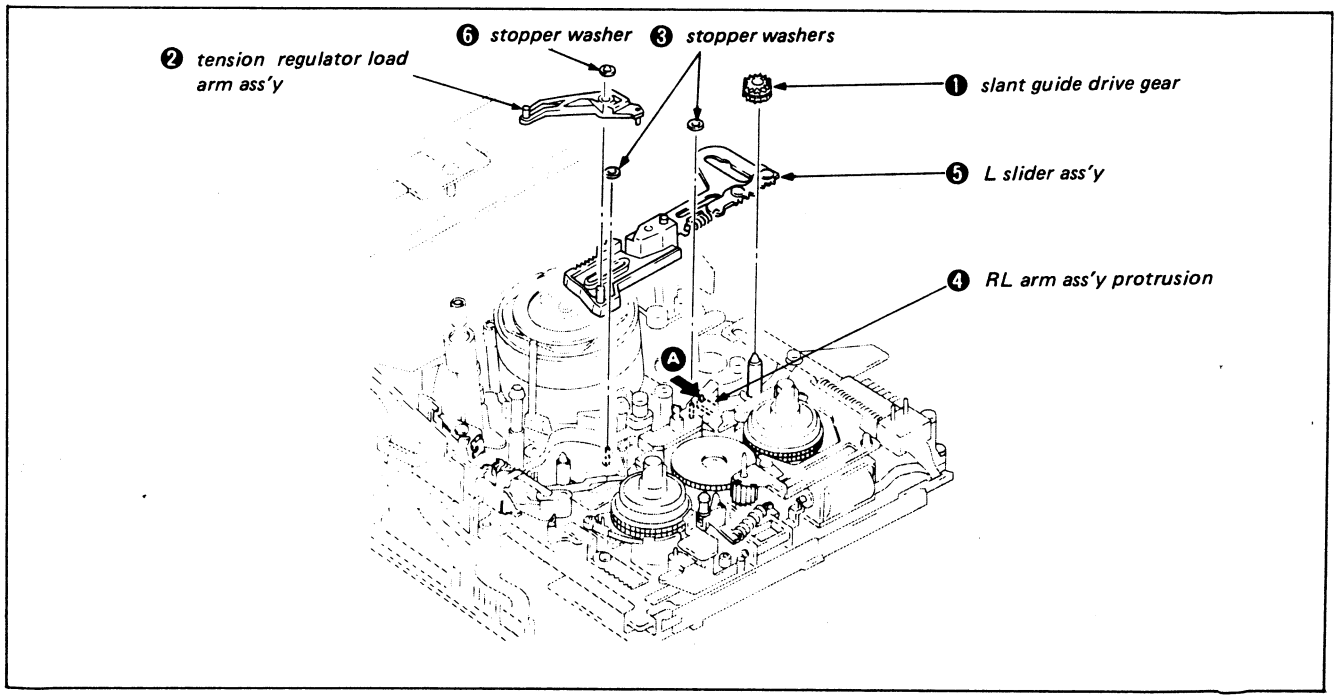


Fig. 3-26.

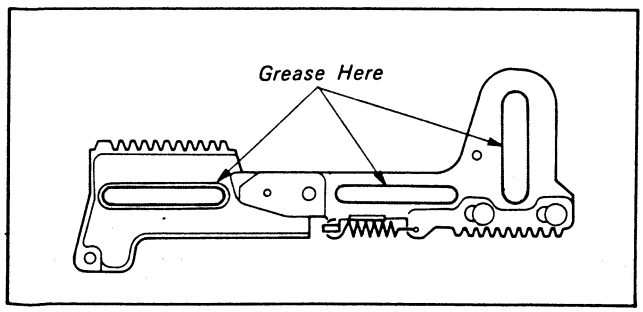


Fig. 3-27.

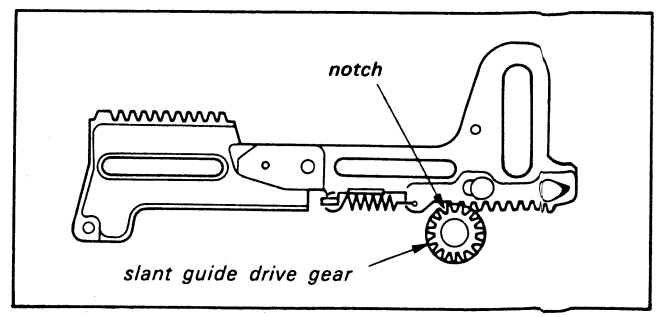


Fig. 3-28.

3-12. L-SW ASSEMBLY

1. Removal

1) Remove the L slider assembly according to 3-11., 1. Removal.
2) Remove lock slider holder ❶.
3) Remove screw ❷ and lock slider A ❸.
4) Remove stopper washer ❹ and coil spring ❺.
5) Remove drive changer assembly ❻.
6) Remove connector ❼.
7) Remove the two screws ❽ and the L-SW assembly ❾. (Refer to Fig. 3-29)

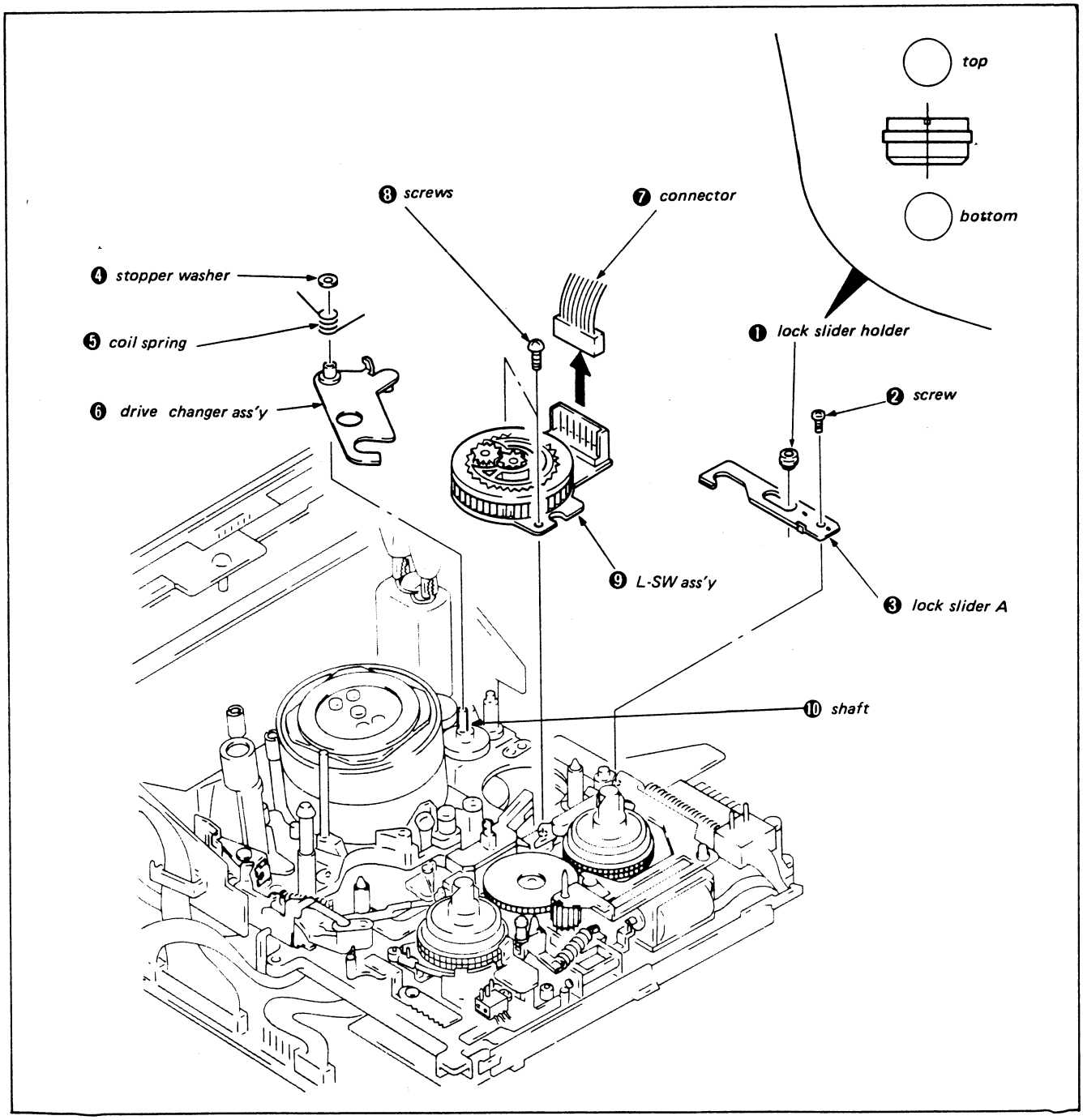


Fig. 3-29.

2. Mounting

1) Place a half drop of oil on the L-SW assembly ❾ shaft (planetary gear).
2) Mount L-SW assembly ❾ and tighten with the two screws ❽ .
3) Connect connector ❼ .
4) Operate the mode selector and check that the L-SW assembly ❾ rotates.
5) Place a half drop of oil on shaft ❿ .
6) Grease the drive change assembly ❻ as shown in Fig. 3-30.
7) Mount the drive changer assembly ❻ . (See Fig. 3-29)
8) Mount the coil spring ❺ and the stopper washer ❹.
9) Operate the mode selector and check that the L-SW assembly ❾ rotates.
10) Mount lock slider A ❸ and tighten screw ❷.
11) Mount lock slider holder ❶. (Fig. 3-29)
12) Operate the mode selector and set to the position in Fig. 3-31.
13) Mount the L slider assembly according to 3-11., 2, Mounting.

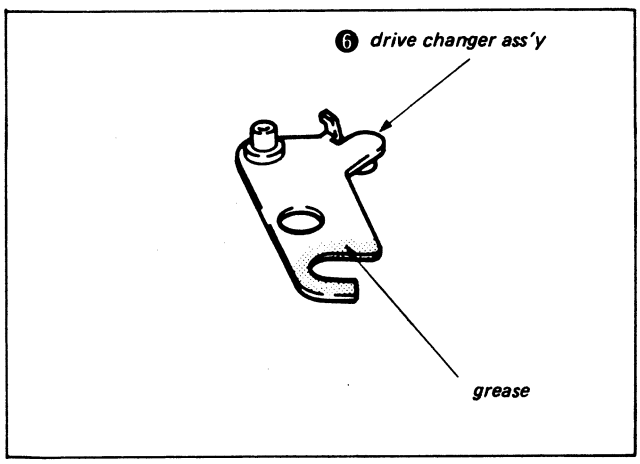


Fig. 3-30.

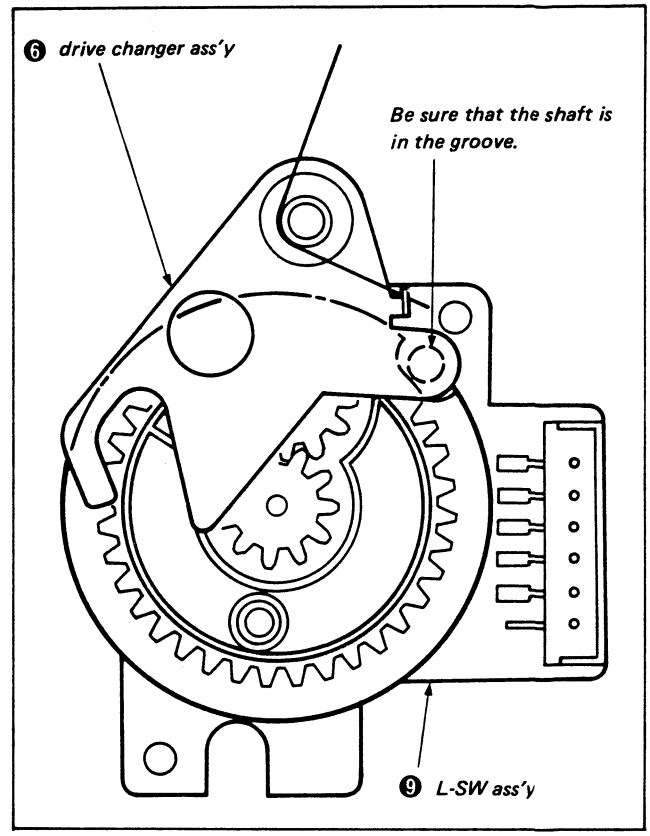


Fig. 3-31.

3-13. PLUNGER SOLENOID

1. Removal

1) Open the MD-8D board according to Section 2, 2-8. and remove connector CN13 (yellow) 3P.
2) Remove the cassette compartment assembly according to Section 2, 2-3.
3) Remove spring ❶.
4) Remove the two stopper washers ❷.
5) Remove screw ❸ and the lock slider B assembly ❹.
6) Remove the two screws ❺ and the plunger solenoid ❻. (At this time, be careful not to scratch the T reel assembly with the screwdriver, and do not touch it.) (Fig. 3-32)

2. Mounting

1) Insert the plunger solenoid pin ❼ into the P arm hole ❽ and mount with the two screws ❺. (Again, be careful not to scratch or touch the T reel assembly.)
2) Mount lock slider B assembly ❹ and tighten screw ❸.
3) Mount the two stopper washers ❷.
4) Hook on the spring ❶. (Fig. 3-32)
5) Mount the cassette compartment assembly by following the procedure in 1-8. in reverse.
6) Connect the CN13 connector (yellow) to the MD-8D board.
7) Mount the MD-8D board by following the procedure in Section 2, 2-8. in reverse.

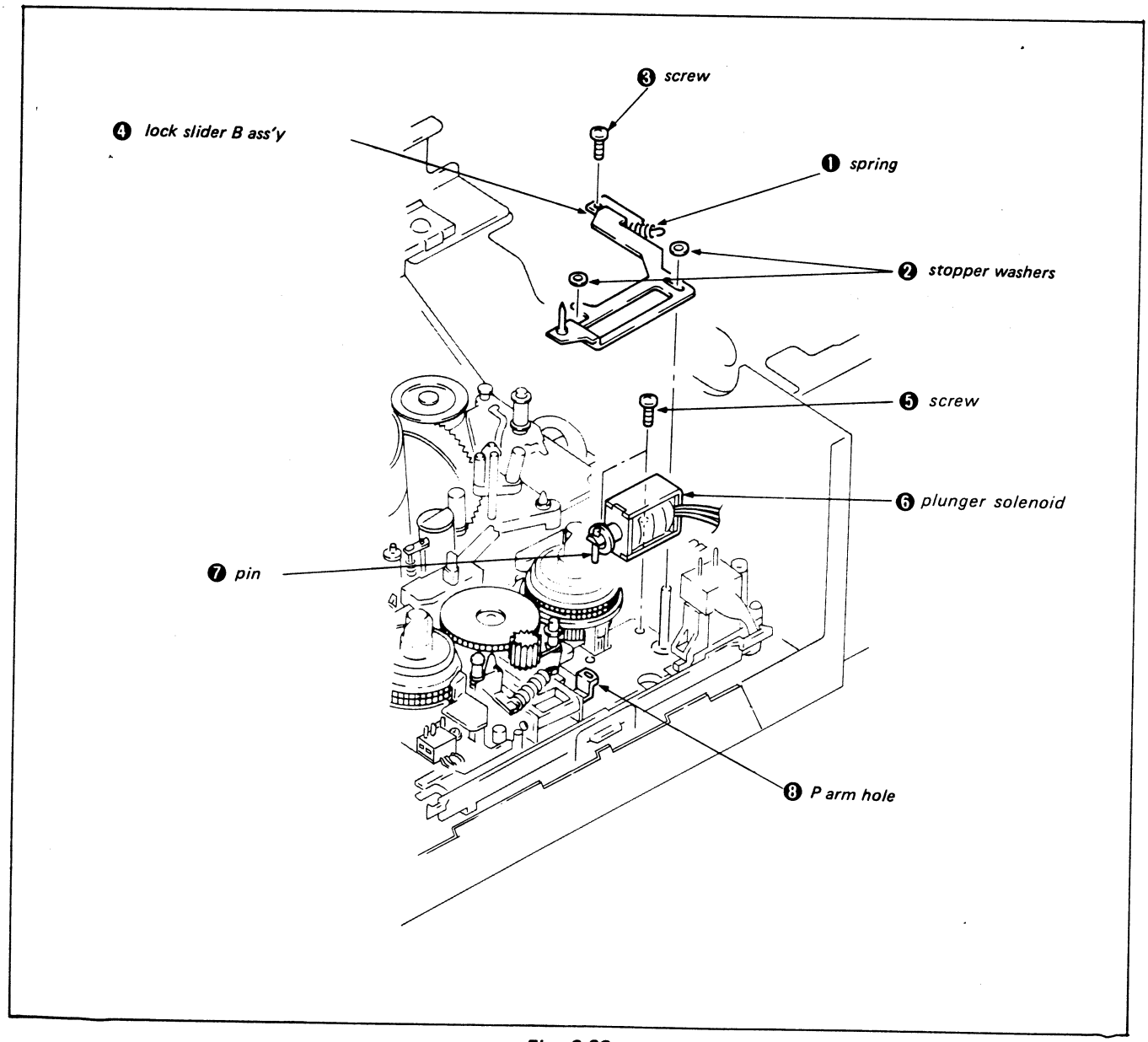


Fig. 3-32.

3-14. M-SW ASSEMBLY

1. Removal

1) Open the MD-8D board according to Section 2, 2-8., and remove CN25 connector (yellow) 2P and lengthen the wiring which comes outside.
2) Remove the T reel assembly according to 3-2. (Fig. 3-2)
3) Remove stopper washer ❶ and the drive gear B assembly ❷.
4) Remove the LD-1 board. (See Fig. 3-33)
5) Remove lock slider Ⓑ assembly according to 3-13., 1. Removal, 3), 4) and 5).
6) Remove spring ❹ and B release arm assembly ❺.
7) Check [EJECT] mode.
8) Remove stopper washer ❻ and the mode output gear ❼.
9) Remove screw ❽ and the push switch ❾.
10) Remove connector ❿.
11) Remove the three screws ⓫, the control motor cover assembly ⓬ and the M-SW assembly ⓭.
12) Remove solder Ⓐ and remove the DC motor ⓮. (Refer to Fig. 3-34)

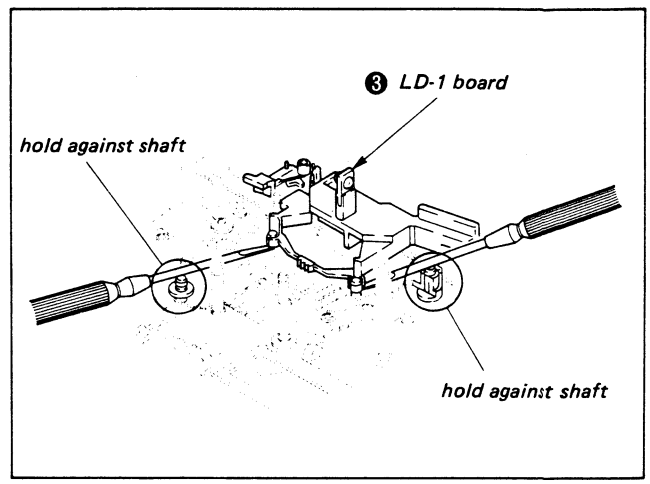


Fig. 3-33.

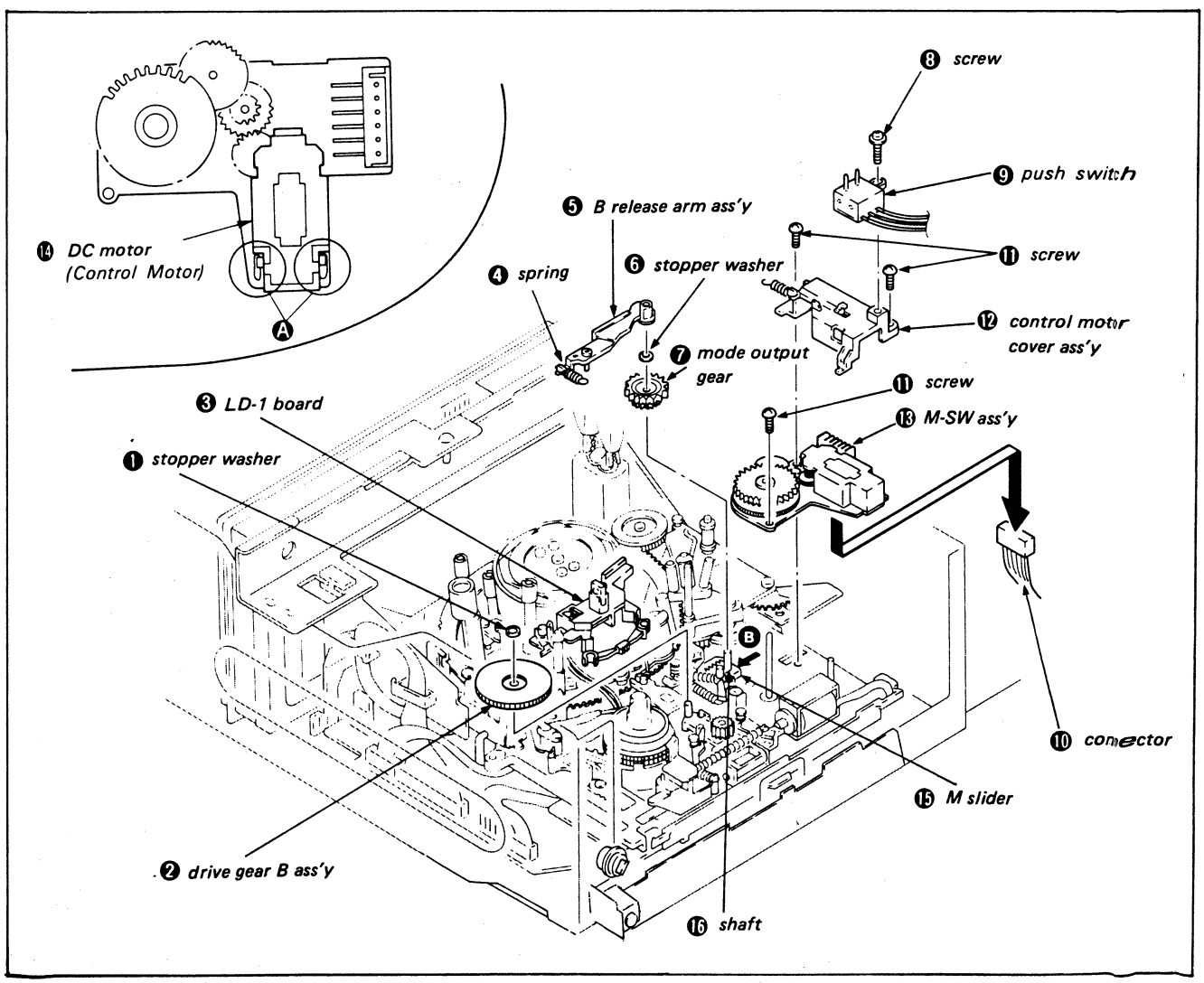


Fig. 3-34.

2. Mounting

1) Solder the DC motor (Control Motor) ⓮ .
2) Mount the M-SW assembly ⓭ and the control motor cover assembly ⓬ , and tighten the three screws ⓫ .
3) Connect connector ⓾ .
4) Mount push switch ❾ and tighten screw ❽ .
5) Check [EJECT] mode.
6) Check that M slider ⓯ is moved fully in the direction of arrow Ⓑ .
7) Place a half drop of oil on shaft ⓰ . (Fig. 3-34)
8) Mount the mode output gear ❼ so that the positioning holes are lined up. (Fig. 3-35)
9) Mount stopper washer ❻ .
10) Set to [LOADING/UNLOADING] mode.
11) Mount B release arm assembly ❺ and spring ❹ .
12) Mount the lock slider B assembly according to 3-13., 2. Mounting, 2), 3) and 4).
13) Mount the LD-1 board ❸ .
14) Mount drive gear B assembly ❷ and stopper washer ❶ . (Fig. 3-34)
15) Mount the T reel assembly according to 3-2., 2. Mounting.
16) Connect the 2P CN25 connector (yellow) to MD-8D board.
17) Mount the MD-8D board by following the procedure in Section 2, 2-8. in reverse.

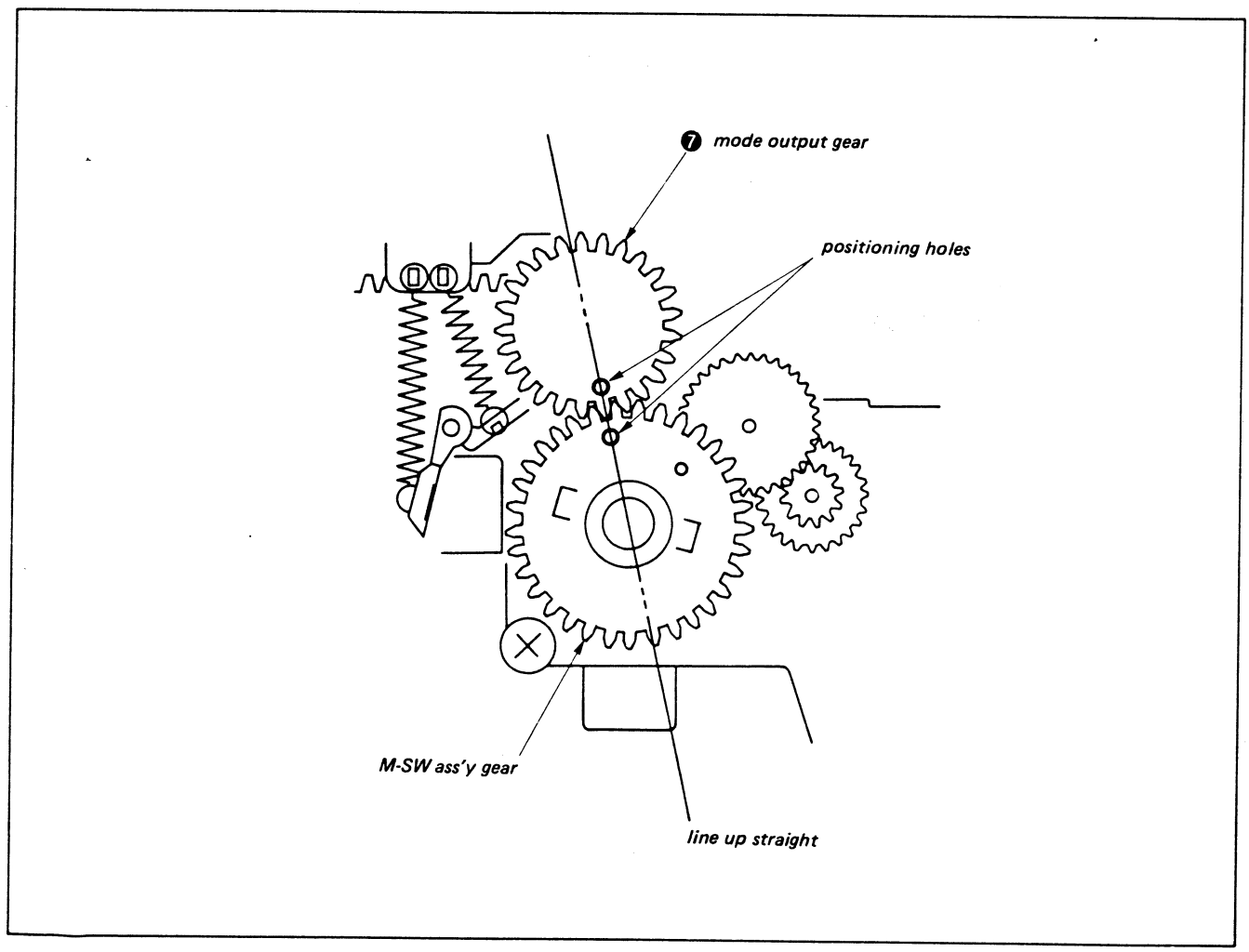


Fig. 3-35.

3-15. M SLIDER

1. Removal

1) Open the MD-8D board according to Section 2, 2-8., and remove timing belt ❶.
2) Remove the pinch press arm assembly according to 3-3., 1. Removal. (Fig. 3-3)
3) Remove the tension regulator arm assembly according to 3-4., 1. Removal. (Fig. 3-4)
4) Remove the tension regulator band assembly according to 3-5., 1. Removal. (Fig. 3-5)
5) Remove the loading ring assembly according to 3-7., 1. Removal (Fig. 3-8)
6) Perform 3-14., steps 1)-6).
7) Remove the tension regulator load arm assembly according to 3-11., 1. Removal, 8). (Fig. 3-26)
8) Remove spring ❷.
9) Remove the two stopper washers ❸ and remove the S main brake assembly ❹ and T brake assembly ❺.
10) Set to [LOADING TOP], [LOADING/UNLOADING] mode.
11) Remove the two screws ❻ and the drive assembly ❼.
12) Perform 3-14., 1. Removal, steps 7) and 8).
13) Remove the two springs ❽.
14) Remove REW brake assembly ❾.
15) Remove stopper washer ❿ and B release slider ⓫.
16) Remove RVS arm ⓬.
17) Remove stopper washer ⓭ and ring lock spring ⓮ and RL arm assembly ⓯.
18) Move the M slider ⓰ to the right (leave about 5 mm at the left.)
19) Remove the E ring ⓱ and the pinch press lever assembly ⓲.
20) Remove spring ⓳ and the hard brake S ⓴.
21) Remove stopper washer ㉑, push the mode arm ㉒ in the direction of arrow Ⓐ, and lift up the left side of the M slider ⓰ to remove. (See Fig. 3-36)

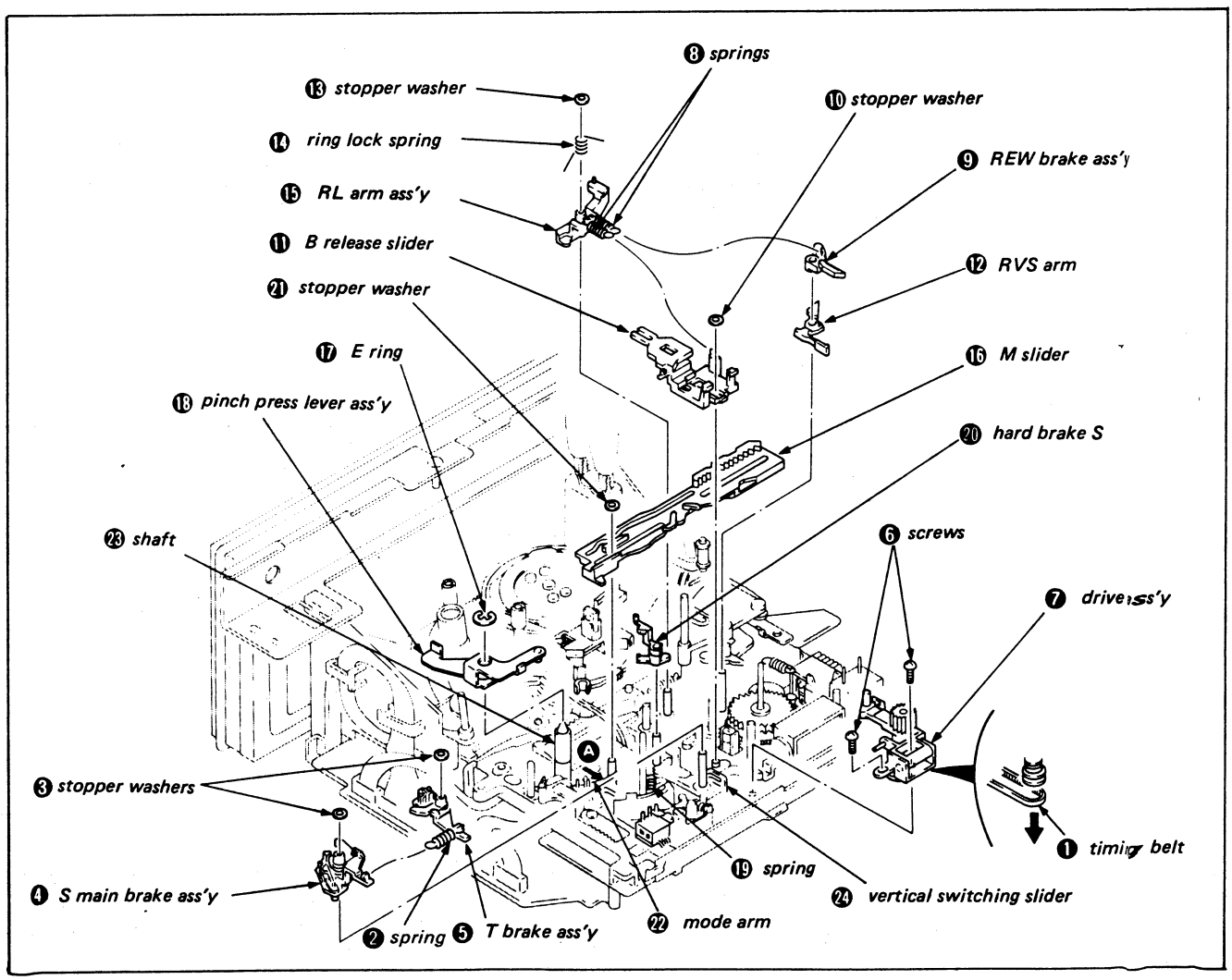


Fig. 3-36.

2. Mounting

1) Apply grease. (See Fig. 3-37)
2) Push mode arm ㉒ in the direction of arrow Ⓐ, and mount the M slider ⑯, noting the positioning of the other parts in Fig. 3-38, and mount the stopper washer ㉑.
3) Mount hard brake S ❷ and spring ⑲.
4) Apply grease. (See Fig. 3-39)
5) Apply a half drop of oil from the shaft ㉓ groove to the bottom, mount the pinch press lever assembly ⑱ and the E ring ⑰.
6) Mount RL arm assembly ⑮, mount the ring lock spring ⑭ and the stopper washer ⑬.
7) Mount the RVS arm ⑫.
8) Mount B release slider ⑪ and stopper washer ⑩.
9) Mount REW brake assembly ❾.
10) Mount the two springs ❽.

Note: Mount the springs as follows, being careful not to mix them up.

- B release slider spring: total diameter 2 mm, wire diameter 0.18 mm
- REW brake assembly spring: total diameter 1.6 mm, wire diameter 0.12 mm

11) Push the M slider ⑯ all the way to the left.
12) Perform 3-14., 2. Mounting, steps 7), 8) and 9).
13) Set to LOADING/UNLOADING mode.
14) Insert the drive assembly ❼ horizontal shaft into the vertical switching slider ㉔ groove, and insert the protrusion on the RVS arm ⑫ into the notch in the drive assembly ❼ and mount with the two screws ❻.
15) Mount T brake assembly ❺ and S main brake assembly ❹. Mount the two stopper washers ❸ and the spring ❷. (See Fig. 3-36)
16) Mount the tension regulator load arm assembly according to 3-11., 2. Mounting, step 2).
17) Perform 3-14., 2. Mounting, steps 11) ~ 16).
18) Mount the loading ring assembly according to 3-7., 2. Mounting.
19) Mount the tension regulator band assembly according to 3-5., 2. Mounting.
20) Mount the tension regulator arm assembly according to 3-4., 2. Mounting.
21) Mount the pinch press arm assembly according to 3-3., 2. Mounting.
22) Mount the timing belt ❶.
23) Mount the MD-8D board by performing the procedure in Section 2, 2-8. in reverse.

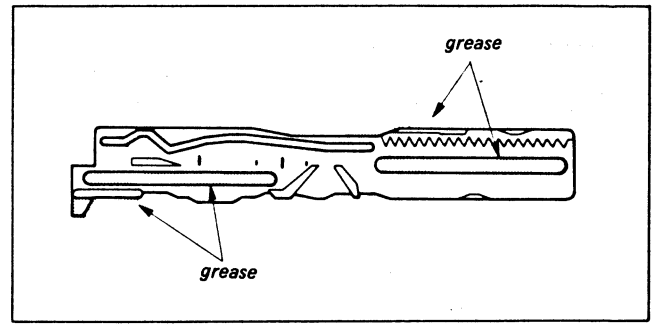


Fig. 3-37.

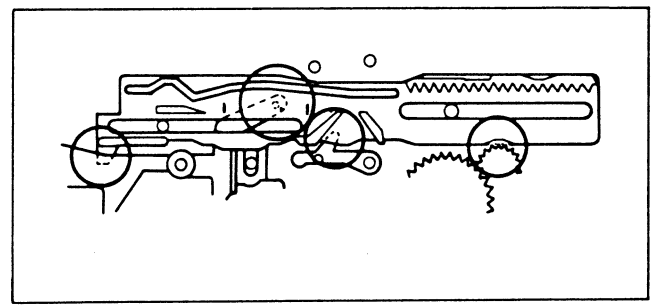


Fig. 3-38.

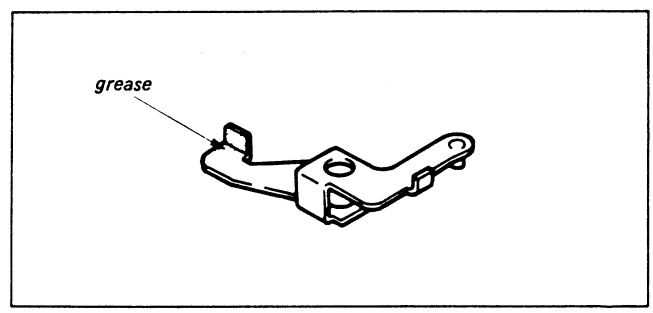


Fig. 3-39.

3-16. CAPSTAN MOTOR ASSEMBLY

1. Removal

1) Remove the loading ring assembly according to 3-7., 1. Removal. (See Fig. 3-8)
2) Open the MD-8D board according to Section 2, 2-8.
3) Remove screw ❶ and MD harness clamper A ❷.
4) Remove timing belt ❸.
5) Remove screw ❹ and remove conversion gear base assembly ❺ with a screwdriver. (Fig. 3-40, 3-41)

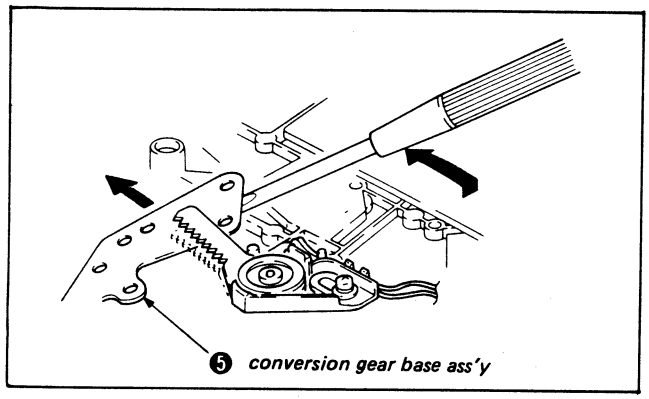


Fig. 3-40.

6) Remove connectors ❻ and ❼.
7) Remove the two screws ❽ and remove the capstan motor assembly ❾ in the direction of arrow Ⓐ. (Fig. 3-41)

2. Mounting

1) Mount capstan motor assembly ❾ and tighten the two screws ❽.
2) Connect connectors ❻ and ❼.
3) Mount conversion gear base assembly ❺ and tighten screw ❹.
4) Mount timing belt ❸.
5) Mount MD harness clamper A ❷ and tighten screw ❶. (Fig. 3-41)
6) Mount the MD-8D board by following the procedure in Section 2, 2-8. in reverse.
7) Mount the loading ring assembly according to 3-7., 2. Mounting (Fig. 3-8)

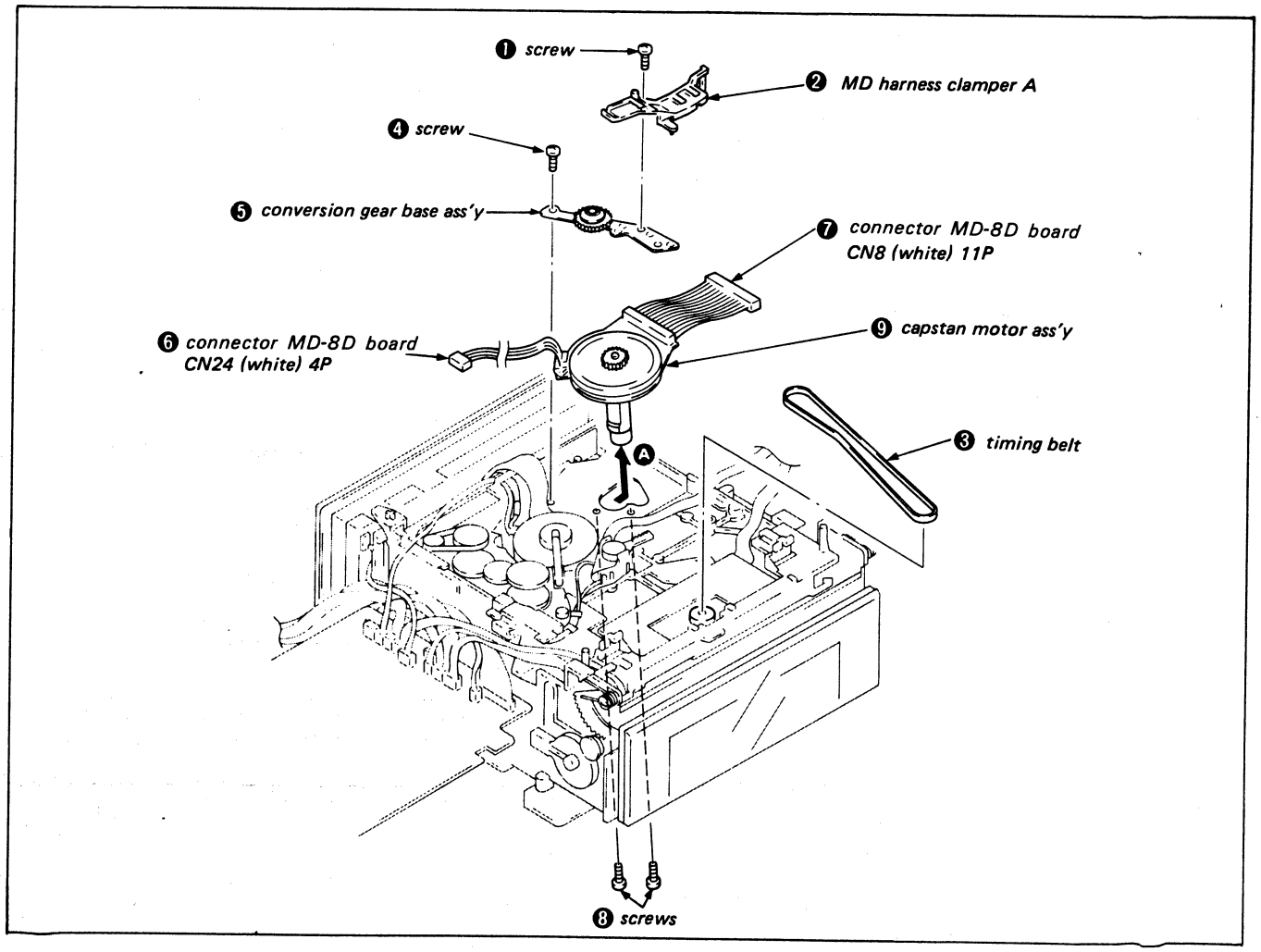


Fig. 3-41.

State of Wear of Video Heads Check

As the accuracy of the check depends on the state of the heads and precision of the checker, the results should be taken only as an indication of the state of wear.

[Adjustment of video head checker]

1) Mechanical zero
   Verify that the pointer of the video head checker is at the mechanical zero position. If it is not at this position, adjust the mechanical zero control.
2) Battery voltage check
   Set the MODE switch to "BATT" and set the POWER switch to "ON". The deflection of the pointer should be within the range marked "BATT". If not, replace the battery (use a 6F22 battery) as follows.
3) Calibration check
   Set the POWER switch to "ON" and the MODE switch to "CAL", then adjust the CAL control so that the pointer is on the CAL mark.

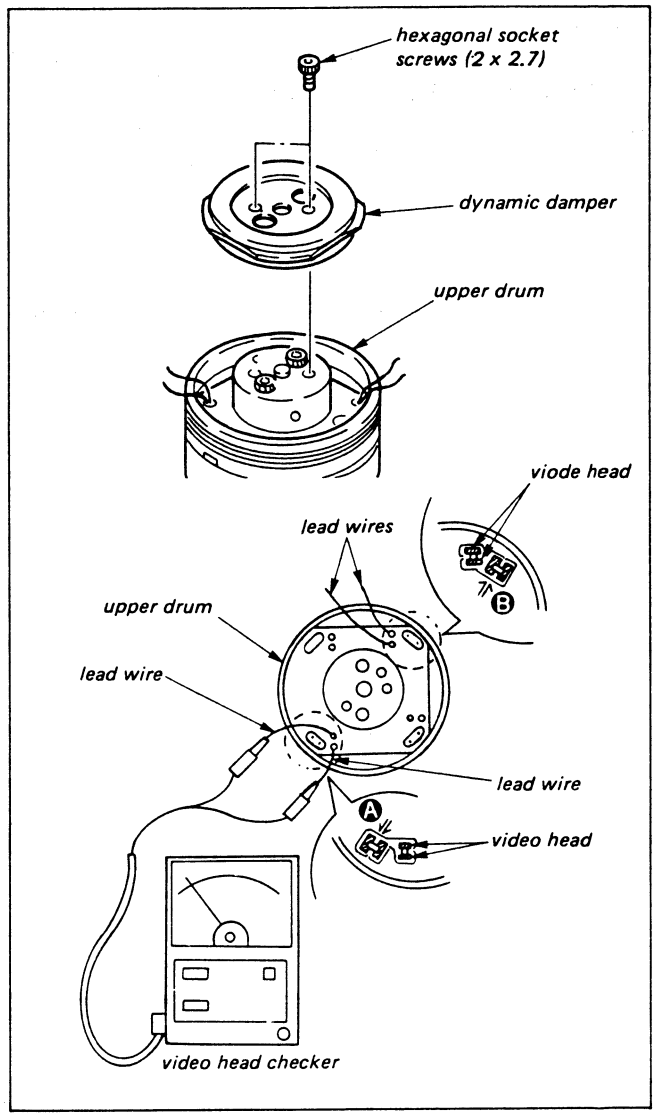
   Note 1: Be sure to carry out this adjustment whenever the RANGE switch is changed.

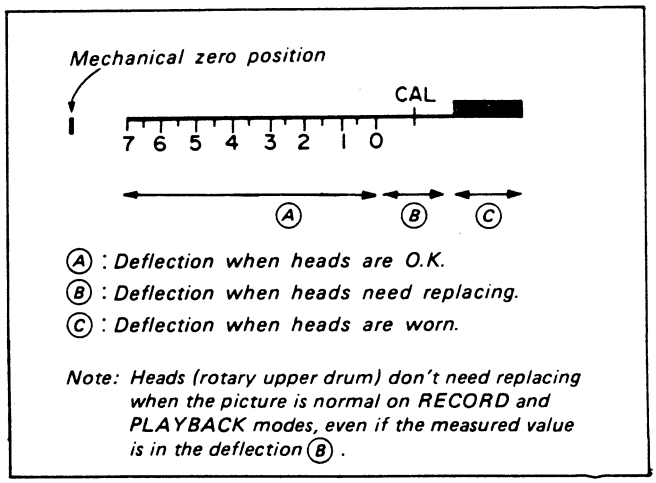
   Note 2: Be sure to check CAL before measuring the head and proceed the measurement after adjusting CAL, if CAL is not properly set.

[Method of measurement]

1) Remove the two hexagonal socket screws (2 x 2.7) and dismount the dynamic damper.
2) Unsolder the portions indicated by the arrow Ⓐ and Ⓑ.
3) Solder the lead wires on the 2 video head.
4) Attach the measuring clips to the head leads.
   Be sure to separate the leads by at least 1.5cm.
5) Set RANGE switch to "A" and MODE switch to "MEAS". The pointer will deflect to indicate the state of wear of the heads.

   Note: The deflection for the 2 video heads may be different so be sure to measure both.





Ⓐ : Deflection when heads are O.K.
Ⓑ : Deflection when heads need replacing.
Ⓒ : Deflection when heads are worn.

Note: Heads (rotary upper drum) don't need replacing when the picture is normal on RECORD and PLAYBACK modes, even if the measured value is in the deflection Ⓑ.

MEASURED VALUE

3-17. REPLACEMENT OF ROTARY UPPER DRUM

1. Removal

- There is a colour mark on the rotary upper drum, as shown in Fig. 3-42, so refer to the table below when replacing.
- If recording is possible, first record before removing.

Colour Mark Combinations when Replacing

New rotary upper drum		Removed rotary upper drum
Part No.	Colour Mark	Colour Mark
A-7049-021-A	blue or red	blue or red
A-7049-022-A	black or green	black or green

Note: Do not combine colour marks other than in the ways listed above.

1) Remove the two hexagonal bolt screws ❶ and the dynamic damper ❷. (Fig. 3-42)
2) Remove all 8 solders in section Ⓐ and confirm that the board and the pins on the bottom can move freely, using tweezers or the like. (Fig. 3-42)
3) Remove the two hexagonal bolt screws ❸. (Fig. 3-42)
4) Mount the supplied jig Ⓑ (Ref No. J-10) on the dynamic damper mounting hole with the two supplied screws ❹, and mount the supplied hexagonal bolt screw ❺ on supplied jig Ⓑ, then remove the rotary upper drum ❻. (Fig. 3-43)

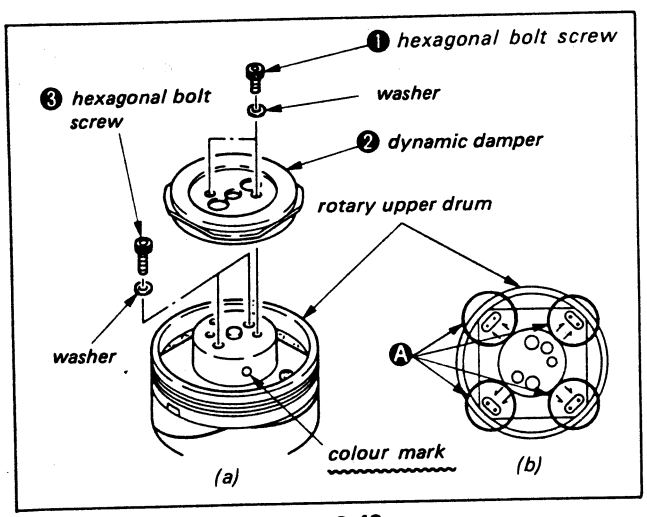


Fig. 3-42.

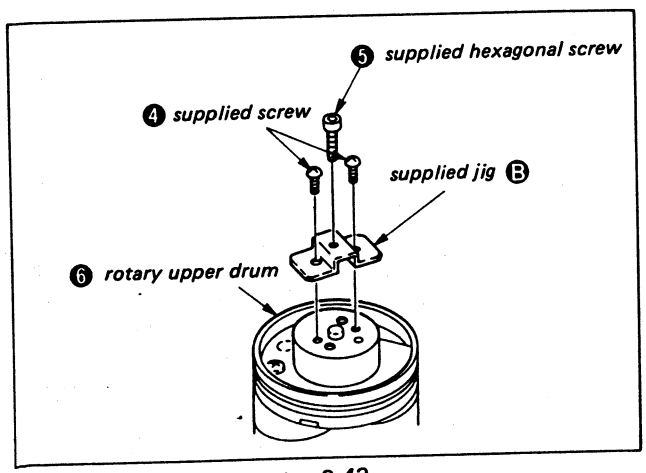


Fig. 3-43.

2. Mounting

1) Clean the flange surface and the surface of the rotary upper drum which contacts it, making sure that there is no dirt or scratches.
2) Use jig Ⓒ (Ref No. J-10) to line up rotary upper drum ❻ and the positioning hole Ⓓ, and lightly insert the rotary upper drum. At this time make sure that the pins come above the rotary upper drum board. Fix with tweezers if the pins catch. (Fig. 3-44)
3) Remove jig Ⓒ and push the rotary upper drum in by hand, gently. (Fig. 3-45) When it is not inserted all the way, tighten the two hexagonal bolt screws ❸ alternately to temporarily fix it.
4) Insert jig Ⓒ into the positioning hole Ⓓ again and make sure it goes in smoothly. If not, loosen the two screws ❸ and insert a clock screwdriver into the hole to fix.
5) Tighten the two screws ❸.
   Note: Be careful not to tighten too much.
6) Solder the pins in section Ⓐ. (Fig. 3-42)
   Note: Be careful that the solder does not go under the board.
7) Mount the dynamic damper ❷ with the two screws ❶. (Fgi. 3-42)
   Note:
   - Be careful not to tighten too much.
   - Be careful not to mix up the hexagonal bolt screw ❶ (2×2.7) and ❸ (2×5)

Note: After mounting, be sure to perform 4. Tape Path Adjustment.

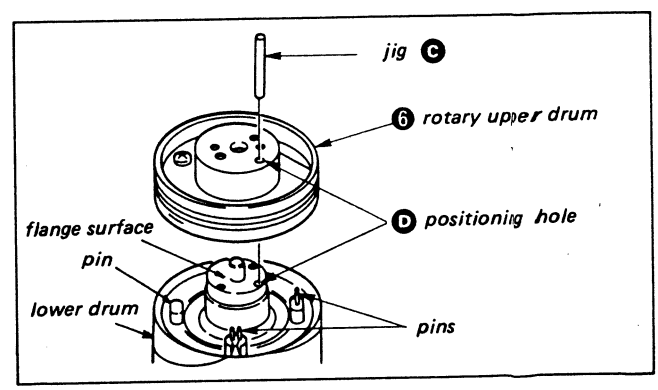


Fig. 3-44.

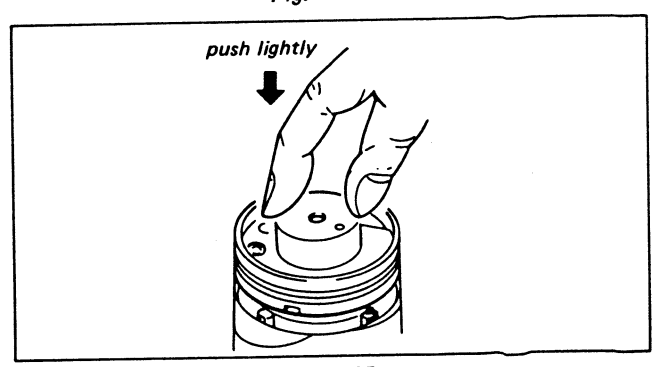
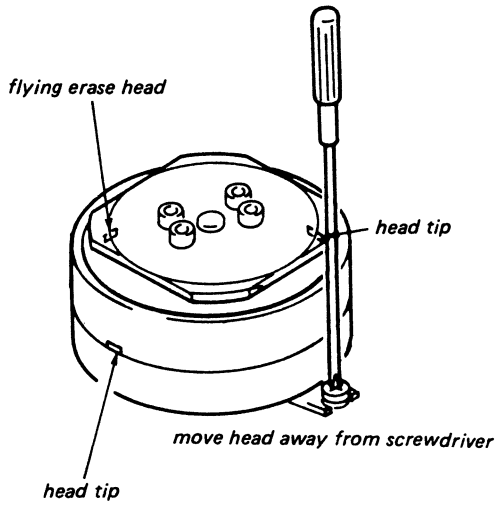


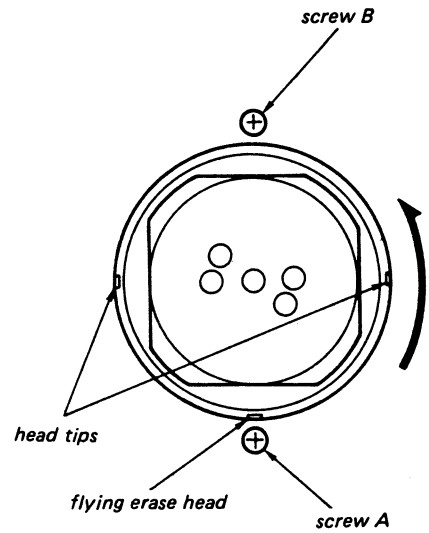
Fig. 3-45.

Notes on Drum Assembly and Rotary Upper Drum Mounting

1. When mounting the drum assembly with a magnetized screwdriver, mount with the head tip in the position shown below to prevent it from being affected by the screwdriver.
2. Be sure to perform tape path adjustment after mounting.



Tightening screw A



When tightening screw B, lotate the head halfway and check the head tip position.

Fig. 3-46.

3-18. REPLACEMENT OF DRUM ASSEMBLY

1. Removal

1) Open the MD-8D board according to Section 2, 2-8.
2) Remove screw ❶ and the shaft ground pin ❷. (Fig. 3-47)
3) Remvoe the four connectors ❸.
4) Remove the two screws ❹.
5) Remove the drum assembly ❺. (Fig. 3-48)

Note: At this time, be careful that the drum assembly does not hit No. 3 guide, etc.

2. Mounting

1) Mount drum assembly ❺ and tighten the two screws ❹.
2) Connect the four connectors ❸. (Fig. 3-48)
3) Mount shaft ground pin ❷ and tighten screw ❶. (Fig. 3-47)
4) Mount the MD-8D board by following the procedure in Section 2, 2-8. in reverse.

Note: Be sure to perform 4. Tape Path Adjustment after mounting.

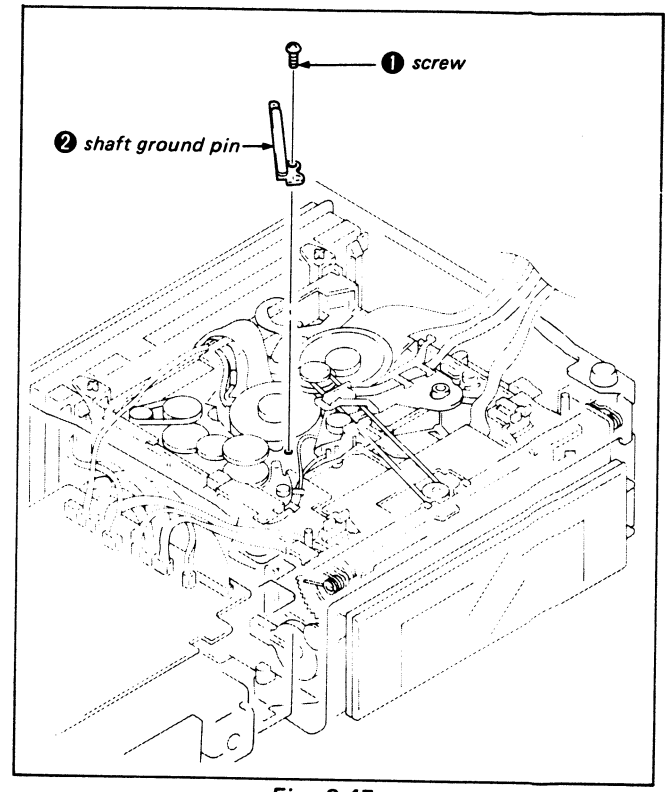


Fig. 3-47.

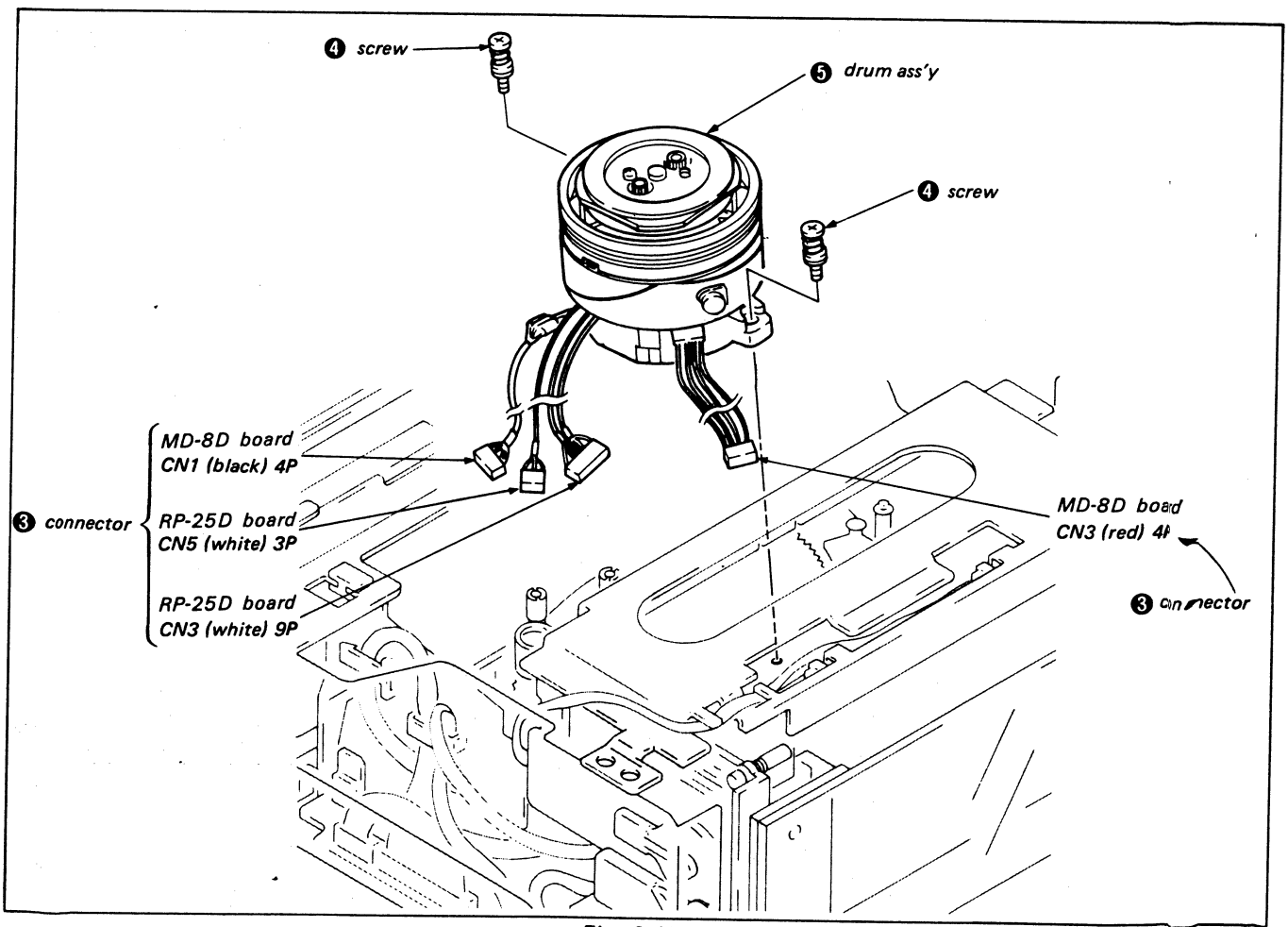


Fig. 3-48.

3-19. ADJUSTMENT AFTER REPLACEMENT OF No. 3 GUIDE AND No. 4 GUIDE

For replacement of both No. 3 and No. 4 guides, line up the tape along the upper flange after replacing. (See Fig. 4-21)

3-20. No. 5 GUIDE ASSEMBLY

1. Removal

1) Remove the three screws ❶ and No. 5 guide assembly.
2) Remove guide nut ❷, spring ❸ and No. 5 guide roller assembly ❹. (Fig. 3-49)

2. Mounting

1) Insert spring ❸ into No. 5 guide roller assembly ❹, engage the bottom section and tighten guide nut ❷.
2) Mount No. 5 guide assembly and tighten the three screws ❶. (Fig. 3-49)

Note: Be sure to perform 4. Tape Path Adjustment after mounting.

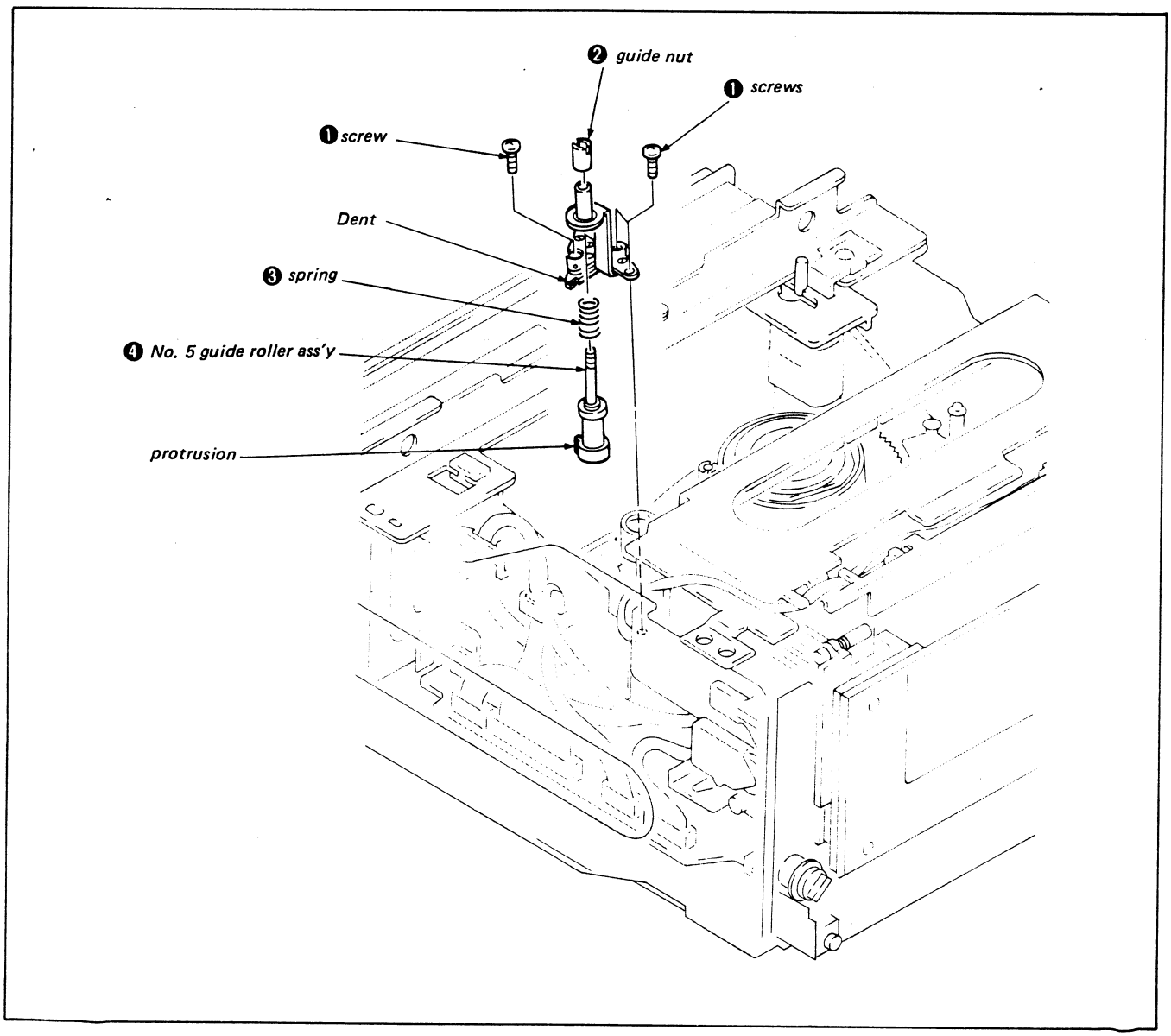


Fig. 3-49.

3-21. FWD BACK TENSION ADJUSTMENT

1) Remove the cassette compartment assembly according to Section 2, 2-3.
2) Remove the mechanism according to Section 2, 2-12.
3) Set to [LOADING END] [FWD] mode.
4) Loosen band adjustment plate ❶ screw ❷ and adjust as shown by arrow Ⓐ so that the tension regulator arm assembly slit ❸ and tension regulator arm assembly pin ❹ are positioned as shown, and tighten screw ❷.
5) Place tension measurement reel (Ref No. J-7) ❻ on the S reel table assembly ❺ and line up with No. 1 guide, No. 2, No. 3 guide and the drum.
6) Pull dial tension gauge (Ref No. J-6) ❼ in the direction of arrow Ⓑ and hook spring ❾ onto the tension regulator spring hook assembly ❽ so that the value is 12.5 ± 1g, as shown. (Fig. 3-50)
   Value too large: arrow Ⓒ direction
   Value too small: arrow Ⓓ direction

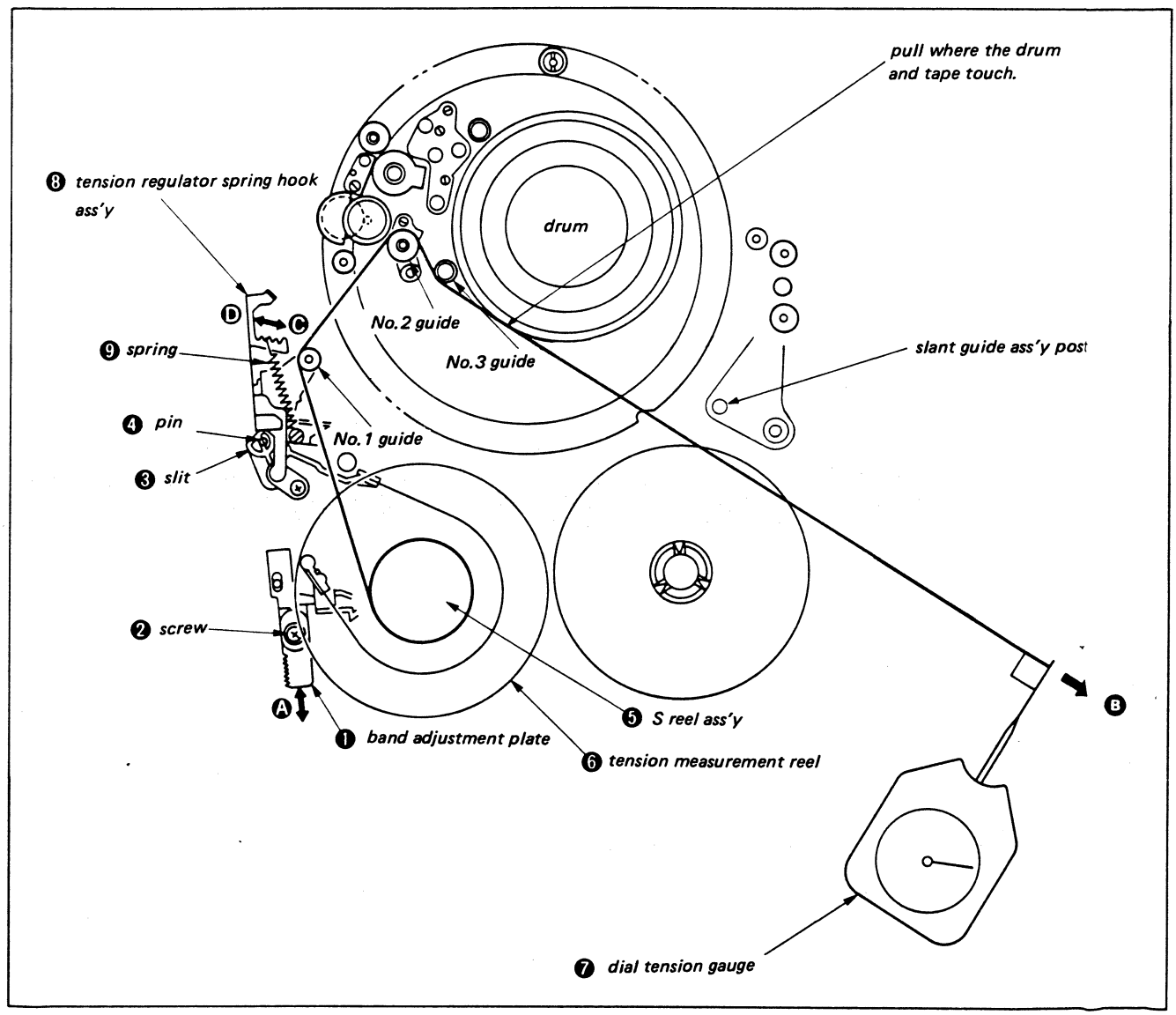


Fig. 3-50.

3-22. CHECK AND ADJUSTMENT OF TIMING BELT TENSION

1) Cover the tape end detection LED light receiving section (TE-1 board) with vinyl tape, etc. and do loading.
2) Remove timing belt ❶ and stopper washer ❷, gear flange ❸ and conversion gear assembly ❹. (Fig. 3-51)
3) Short between SS-38F/G board resistor R10, IC101 side, and ground.
   SS-38G board ..... UK MODEL
   SS-38F board ..... AEP MODEL
4) Remove the pinch press arm side of the tension coil spring on the pinch press arm assembly (round hook side). (Fig. 3-52)
5) Press the erase prevention pin on the RECOG switch and hold down with tape, etc., then press the REC button. (Fig. 3-53)
6) Measure the voltage (Vo) between MD-8D board CAP I_1 and CAP I_2 with an analog tester. (unloaded state) (Fig. 3-54)
7) Mount conversion gear assembly ❹, gear flange ❸, stopper washer ❷ and dynamic belt ❶.
8) Remove drive gear (B).
9) Press the REC button as in step 5), and measure the voltage (Vx) between CAP I_1 and I_2 as in step 6). (for tension adjustment)
10) Confirm that the voltage (Vx) measured for tension adjustment is 5 mV-10 mV higher than that measured (Vo) in unloaded state. If not, adjust as follows.
    Adjustment Procedure:
    i) Loosen screw ❶ and slide the idler assembly as shown by arrow Ⓐ, then tighten screw ❶. (Fig. 3-55)
    ii) Check again following step 9).
    iii) Repeat i) and ii) until the specifications are met.
11) Remove the short performed in step 3).
12) Mount the tension gear (B) and pinch press arm assembly tension coil spring.

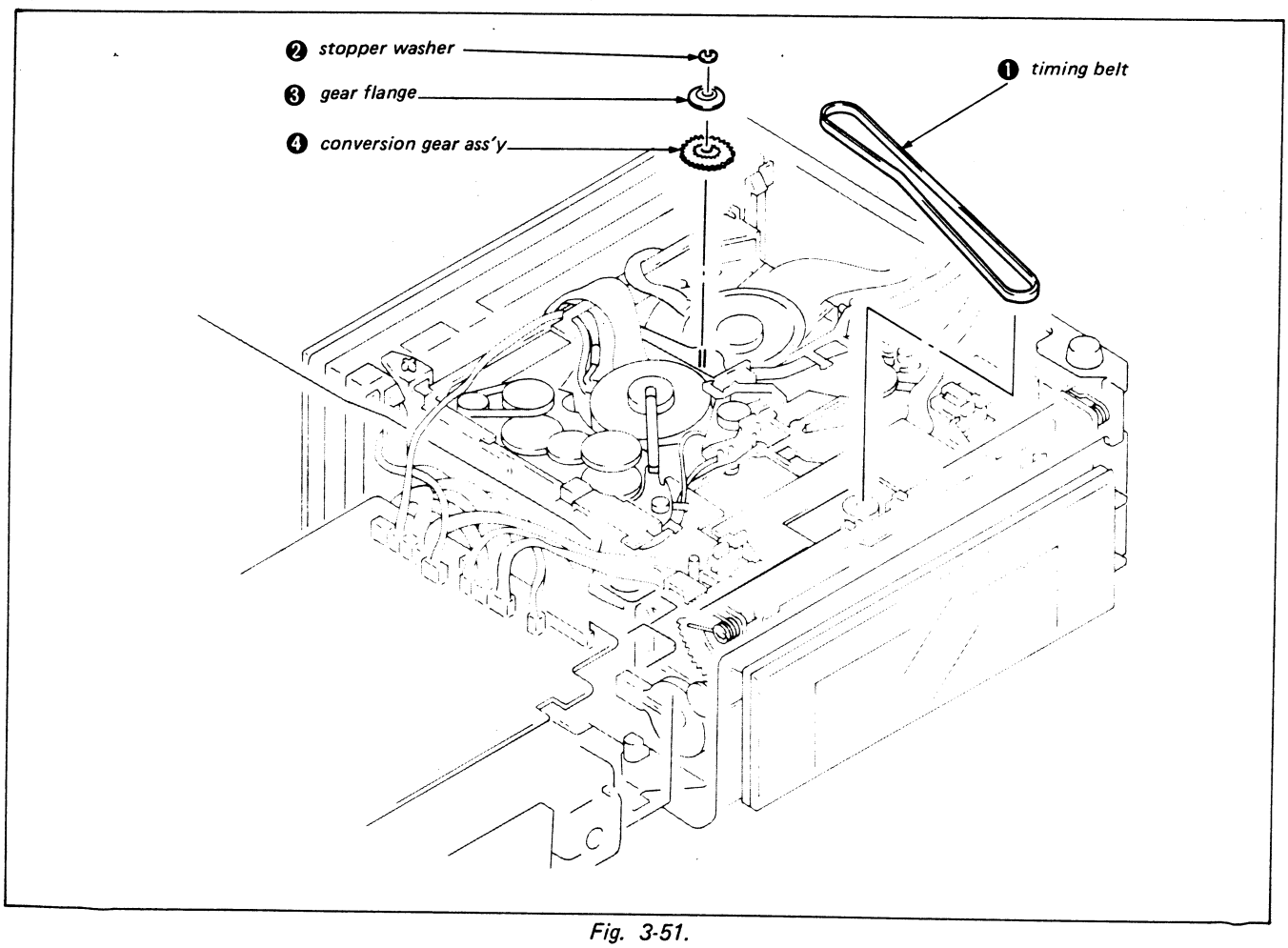


Fig. 3-51.

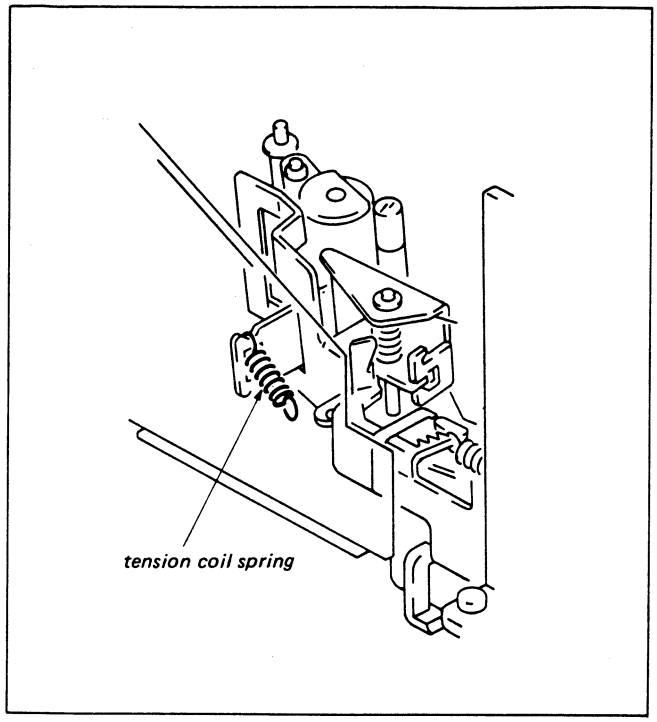


Fig. 3-52.

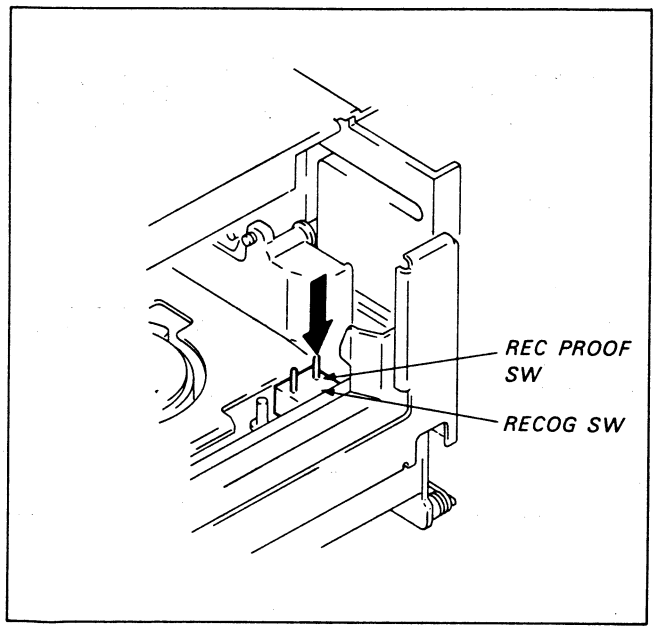


Fig. 3-53.

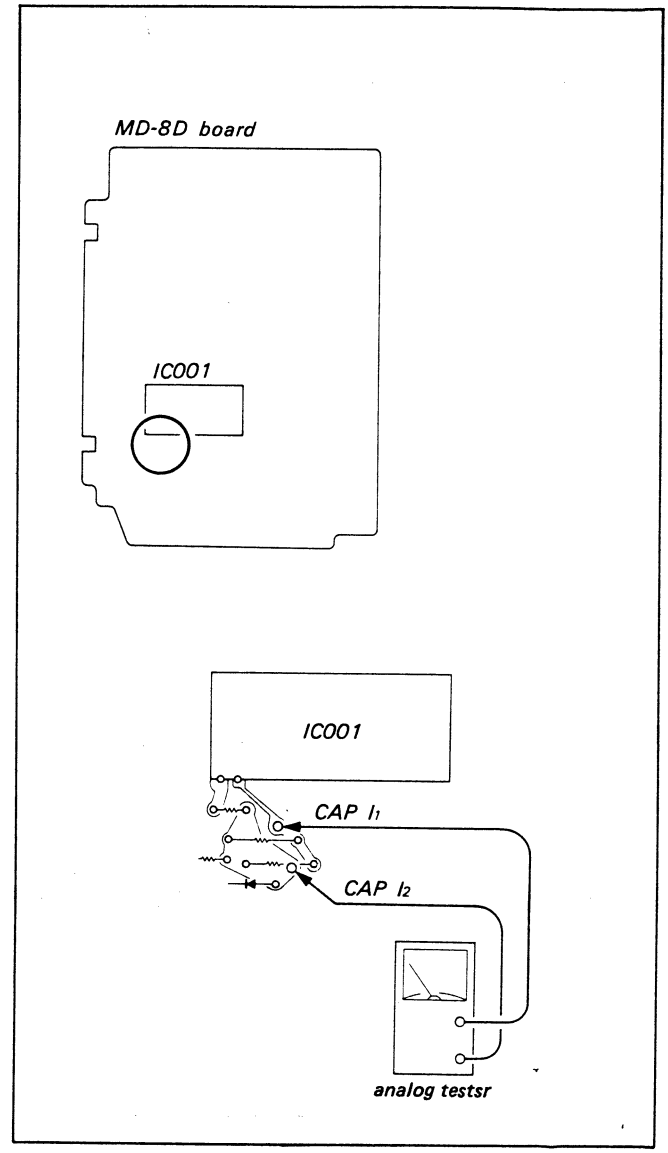


Fig. 3-54.

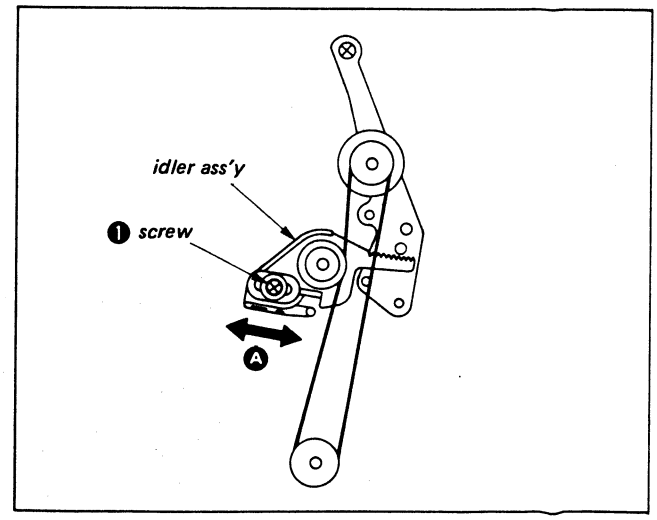


Fig. 3-55.

3-23. GEAR REPLACEMENT AND ADJUSTMENT (CASSETTE COMPARTMENT ASS'Y)

1. Drive Gear (R) Replacement and Adjustment

1) Remove the cassette compartment assembly according to Section 2, 2-3.
2) Release C lock plate ❶ and raise FC holder assembly ❷.
3) Remove stopper washer ❸ and relay gear ❹.
4) Replace drive gear (R) ❺.
5) Insert a thin rod into drive gear (R) ❺ positioning hole ❻ and door gear R positioning hole ❼ and make sure that it goes through.
6) Mount relay gear ❹ and stopper washer ❸.
7) Close cassette compartment cover (H) assembly ❽ and confirm that FC holder assembly ❷ locks.
8) Confirm that cassette compartment cover (H) assembly ❽ and FC side plate R are parallel.
9) Release C lock plate ❶ and check that FC holder assembly ❷ comes up and cassette compartment cover (H) assembly ❽ opens. Also, confirm that the FC holder assembly ❷ goes down and locks when the cassette compartment cover (H) assembly ❽ is closed (Fig. 3-56)
10) Mount the cassette compartment assembly by following the procedure in Section 2, 2-3. in reverse.

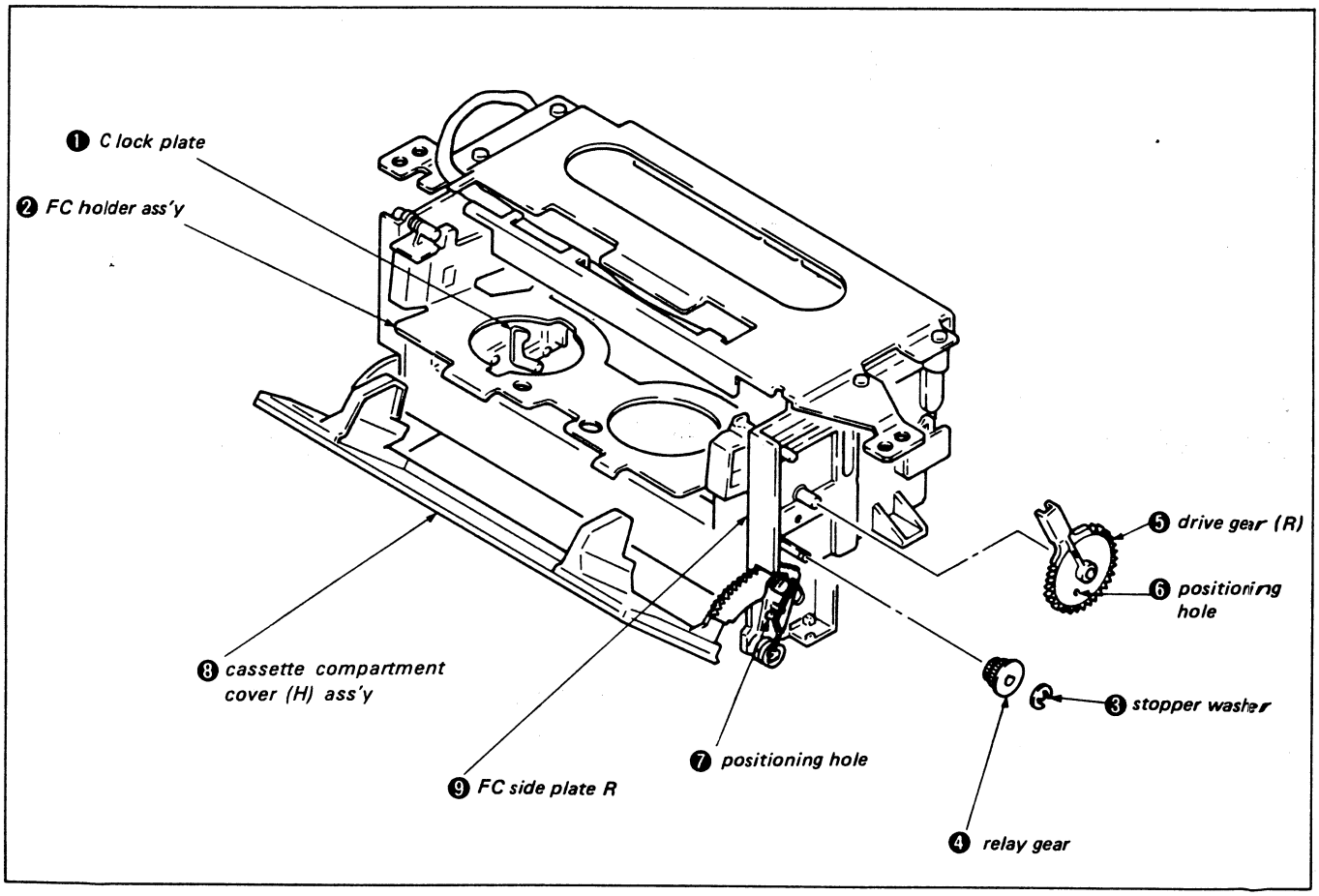


Fig. 3-56.

2. Door Gear R. Replacement and Adjustment

1) Remove the cassette compartment assembly according to Section 2, 2-3.
2) Release C lock plate ❶ and raise FC holder assembly ❷.
3) Remove coil spring ❸.
4) Remove stopper washer ❹ and relay gear ❺.
5) Remove screw ❻ and replace door gear R ❼.
6) Insert thin rods into door gear R ❼ positioning hold ❽ and drive gear (R) positioning hole ❾.
7) Engage the relay gear ❺ with both gears and mount stopper washer ❹.
8) Temporarily tighten screw ❻.
9) Pull out the two rods.
10) Close cassette compartment cover (H) assembly ❿ and confirm that the FC holder assembly ❷ locks.
11) Insert a finger between the cassette compartment cover (H) assembly ❿ and FC side plate R ⓫ so that they become parallel, and tighten screw ❻.
12) Mount coil spring ❸.
13) Release C lock plate ❶ and confirm that FC holder assembly ❷ comes up and cassette compartment cover (H) assembly ❿ opens. Also, check that the FC holder assembly ❷ goes down and locks when the cassette compartment cover (H) assembly ❿ is closed. (Fig. 3-57)
14) Mount the cassette compartment assembly by following the procedure in Section 2, 2-3. in reverse.

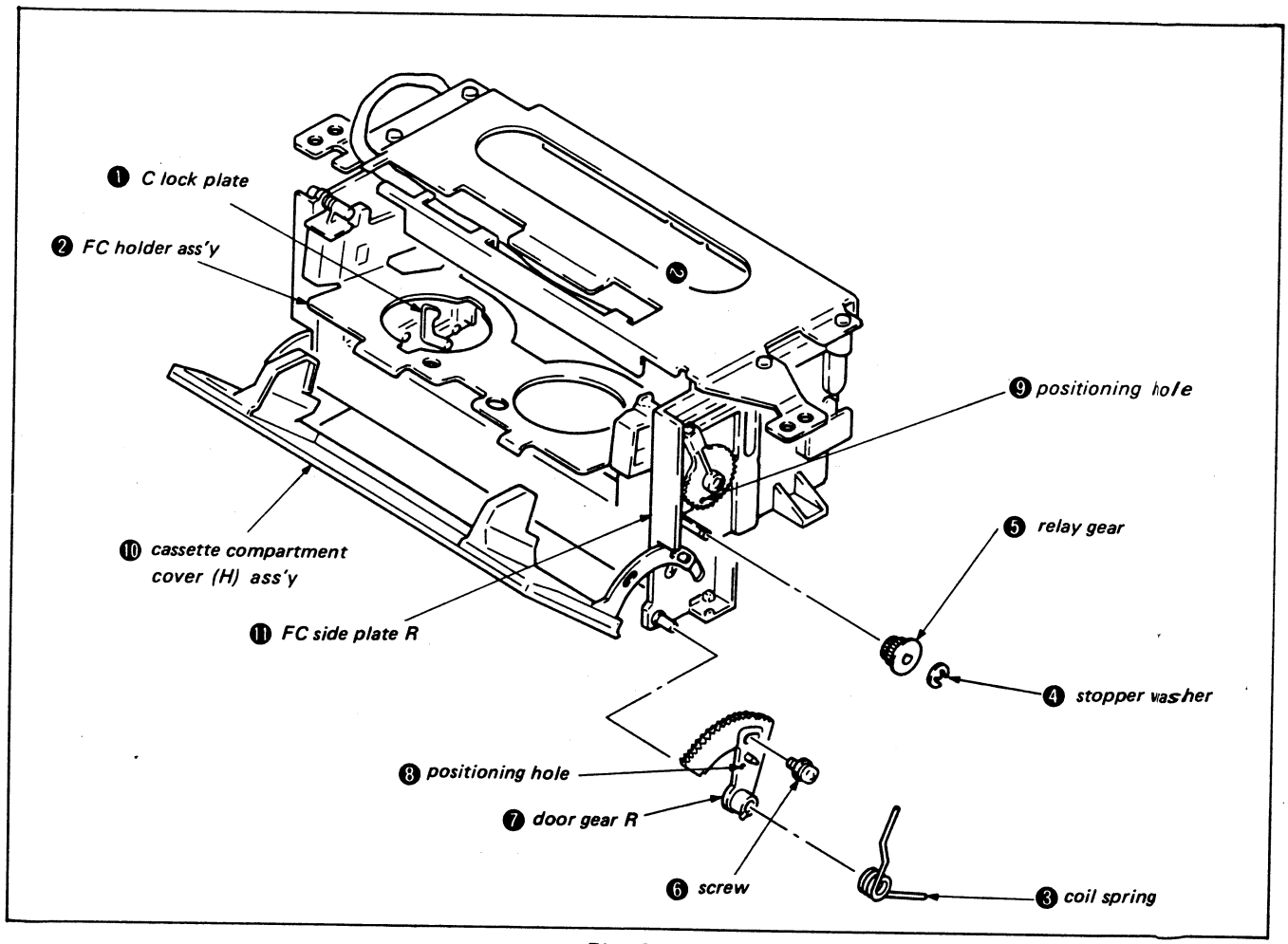


Fig. 3-57.

3. Drive Gear (L) Replacement and Adjustment

1) Remove the cassette compartment assembly according to Section 2, 2-3.
2) Remove screw ❶ and FC harness cover ❷.
3) Release C lock plate ❸ and raise FC holder assembly ❹.
4) Remove screw ❺ and damper ❻.
5) Remove stopper washer ❼ and relay gear ❽.
6) Replace drive gear (L) ❾.
7) Insert thin rods into drive gear (L) ❾ positioning hole ❿ and door gear L positioning hole ⓫ and confirm that they go through.
8) Mount the relay gear ❽ and stopper washer ❼.
9) Close cassette compartment cover (H) assembly ⓬ and confirm that the FC holder assembly ❹ locks.
10) Confirm that the cassette compartment cover (H) assembly ⓬ and FC side plate L ⓭ are parallel.
11) Mount damper ❻ and tighten screw ❺.
12) Mount FC harness cover ❷ and tighten screw ❶.
13) Release C lock plate ❸ and confirm that the FC holder assembly ❹ comes up and the cassette compartment cover (H) assembly ⓬ opens. Also, confirm that the FC holder assembly ❹ goes down and locks when the cassette compartment cover (H) assembly ⓬ is closed. (Fig. 3-58)
14) Mount the cassette compartment assembly, following the the procedure in Section 2, 2-3. in reverse.

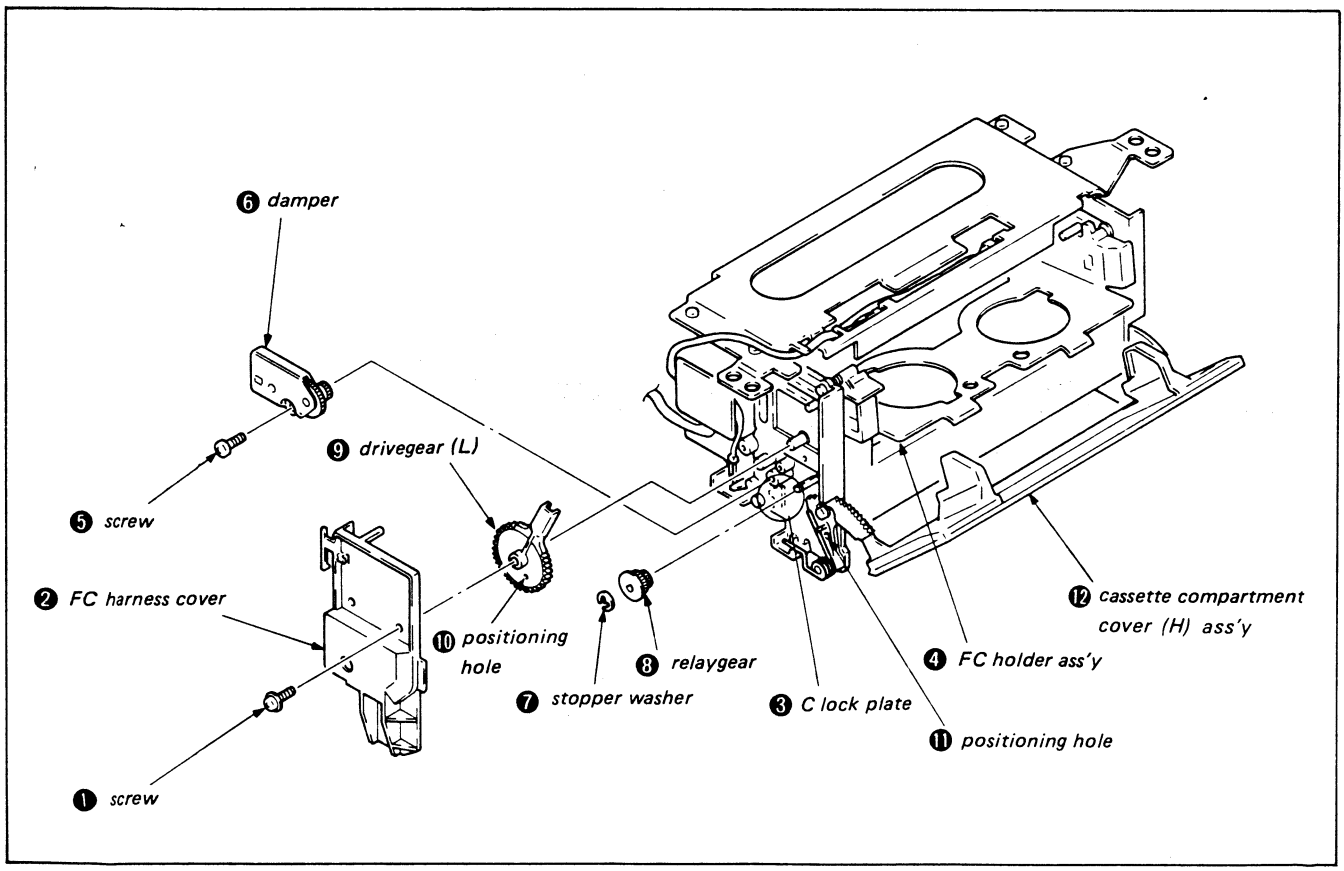


Fig. 3-58.

4. Door Gear L Replacement and Adjustment

1) Remove the cassette compartment assembly according to Section 2, 2-3.
2) Remove screw ❶ and FC harness cover ❷.
3) Release C lock plate ❸ and raise FC holder assembly ❹.
4) Remove coil spring ❺.
5) Remove stopper washer ❻ and relay gear ❼.
6) Remove screw ❽ and replace door gear L ❾.
7) Insert a thin rod into door gear L ❾ positioning hole ❿ and drive gear L positioning hole ⓫.
8) Engage the relay gear ❼ with both gears and mount stopper washer ❻.
9) Temporarily tighten screw ❽.
10) Remove the two rods.
11) Close cssette compartment cover (H) assembly ⓬ and confirm that the FC holder assembly ❹ locks.
12) Insert a finger between the cassette compartment cover (H) assembly ⓬ and FC side plate L ⓭ so that they are parallel, and tighten screw ❽.
13) Mount coil spring ❺.
14) Mount FC harness cover ❷ and tighten screw ❶.
15) Release C lock plate ❸ and confirm that the FC holder assembly ❹ comes up and cassette compartment cover (H) assembly ⓬ opens Also, confirm that the FC holder assembly ❹ goes down and locks when the cassette compartment cover (H) assembly ⓬ is closed. (Fig. 3-59)
16) Mount the cassette compartment assembly by following the procedure in Section 2, 2-3. in reverse.

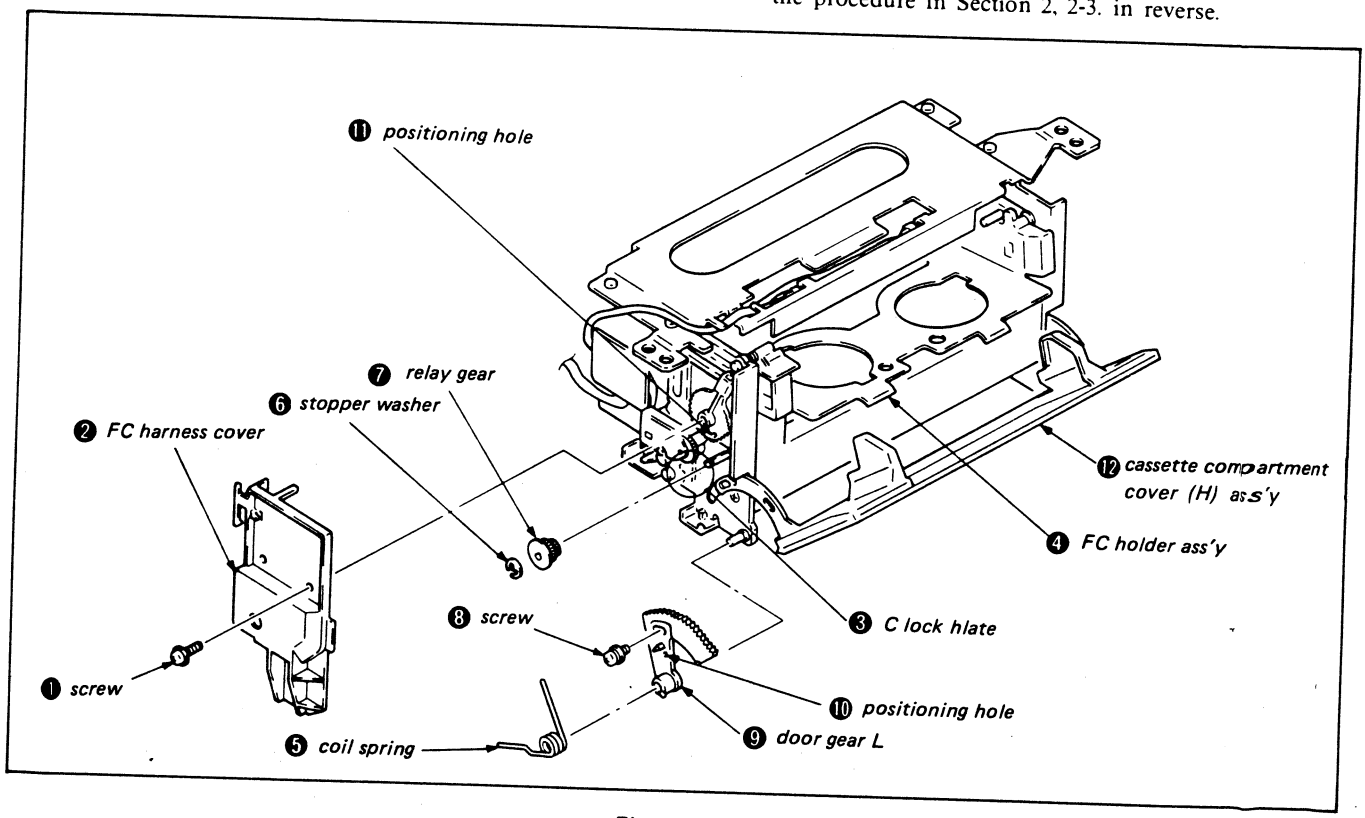


Fig. 3-59.

3-24. CHECK OF S AND T MAIN BRAKE TORQUE

1) Remove the front panel according to Section 2, 2-1.
2) Remove the cassette compartment assembly accroding to Section 2, 2-3.

1. S Main Brake Torque

1) Set to [FF/REW] mode.
2) Place the tension measurement reel (Ref No.J-8) on the S reel table.
3) Pull the dial tension gauge (Ref No.J-6) in the direction of the arrow and confirm that the specifications are satisfied. (Fig. 3-60, 3-61)

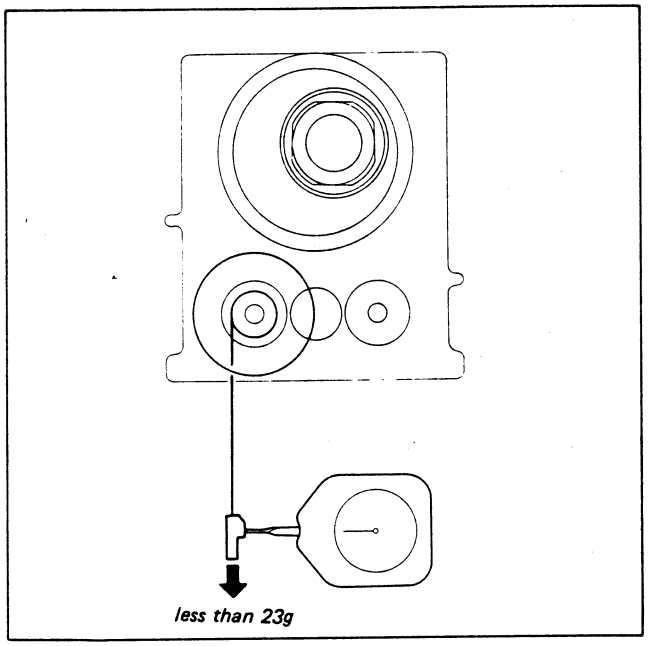


Fig. 3-60.

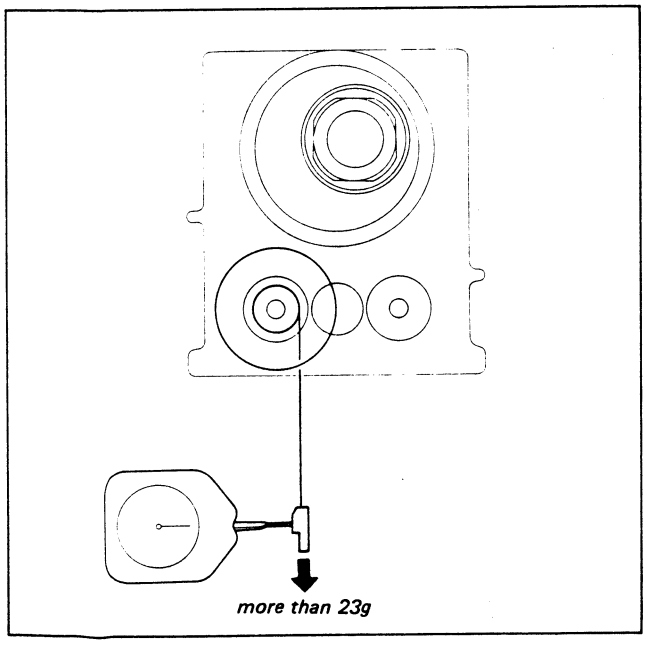


Fig. 3-61.

2. T Main Brake Torque

1) Set to [FF/REW] mode.
2) Place the tension measurement reel (Ref No.J-8) on the T reel table.
3) Pull the dial tension gauge (Ref No.J-6) in the direction of the arrow and confirm that the specifications are satisfied. (Fig. 3-62, 3-63)

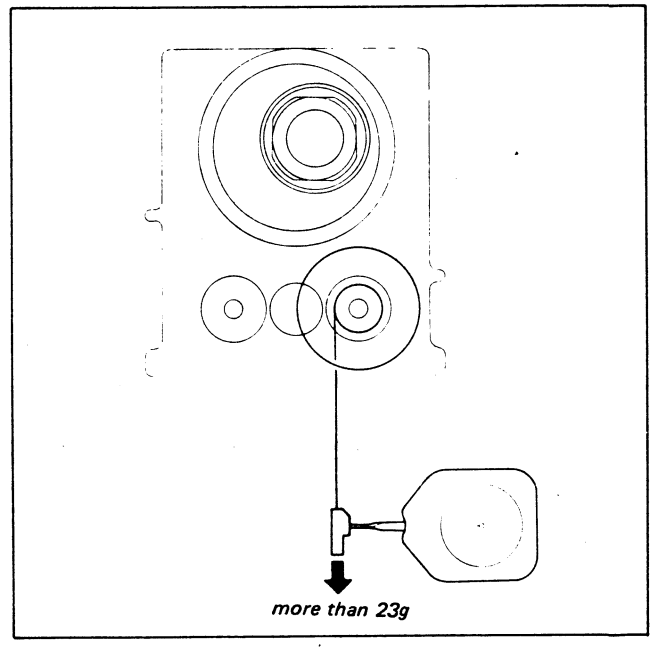


Fig. 3-62.

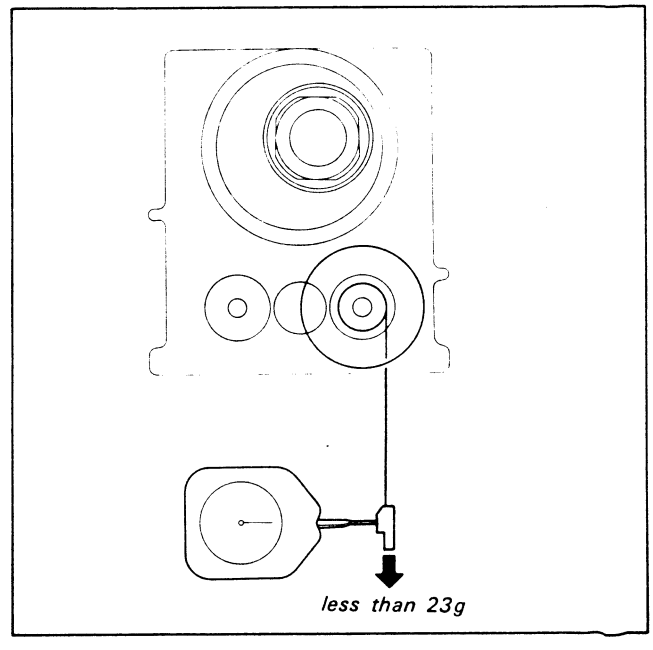


Fig. 3-63.

3-25. CHECK OF S AND T SOFT BRAKE TORQUE

1) Remove the front panel according to Section 2, 2-1.
2) Remove the cassette compartment assembly according to Section 2, 2-3.

1. S Soft Brake Torque

1) Set to [FF/REW] mode.
2) Place the tension measurement reel (Ref No.J-8) on the S reel table.
3) Release the S main brake with a finger.
4) Pull the dial tension gauge (Ref No.J-6) in the direction of the arrow and confirm that the specifications are satisfied. (Fig. 3-64)

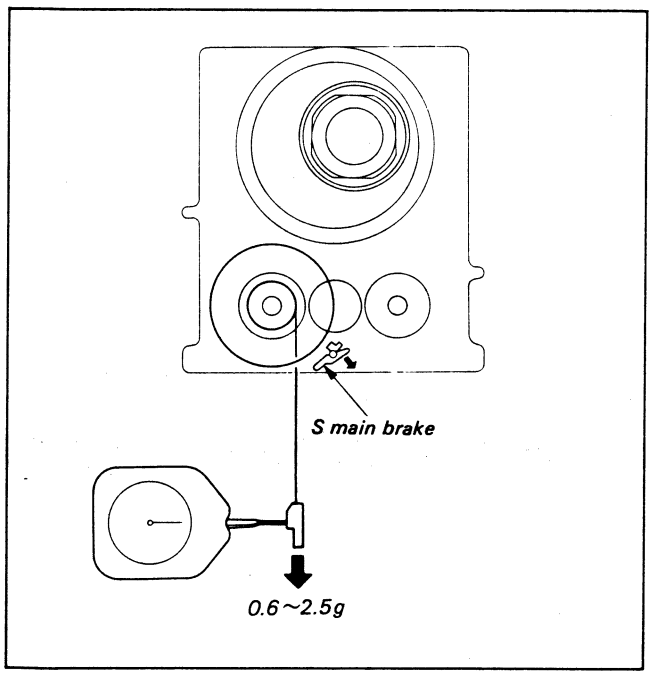


Fig. 3-64.

2. T Soft Brake Torque

1) Set to [REV] mode.
2) Place the tension measurement reel (Ref No.J-8) on the T reel table.
3) Release the T main brake with a finger.
4) Pull the dial tension gauge (Ref No.J-6) in the direction of the arrow and confirm that the specifications are met. (Fig. 3-65)

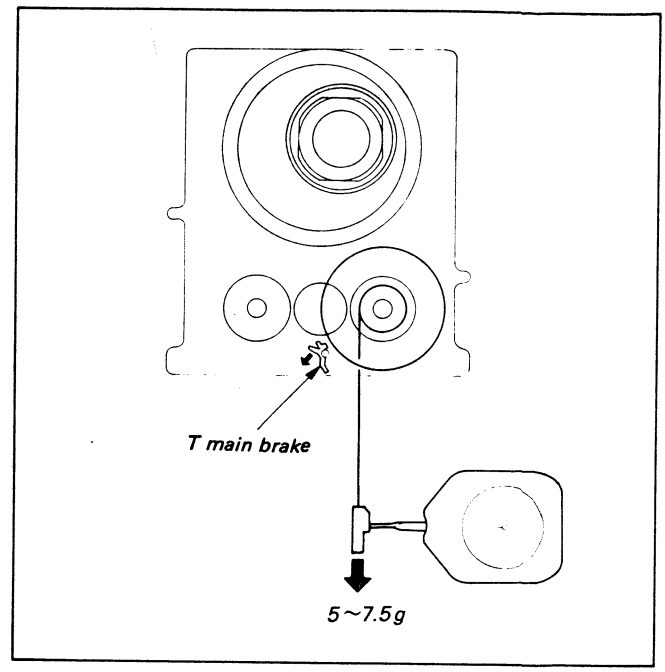


Fig. 3-65.

3-26. CHECK OF REV AND REW BRAKE TORQUE

1) Remove the front panel according to Section 2, 2-1.
2) Remove the cassette compartment assembly according to Section 2, 2-3.

1. REV Brake Torque

1) Set to [REV] mode.
2) Place the tension measurement reel (Ref No.J-8) on the S reel table.
3) Release the S main brake with a finger.
4) Pull the dial tension gauge (Ref No.J-6) in the direction of the arrow and confirm that the specifications are satisfied. (Fig. 3-66)

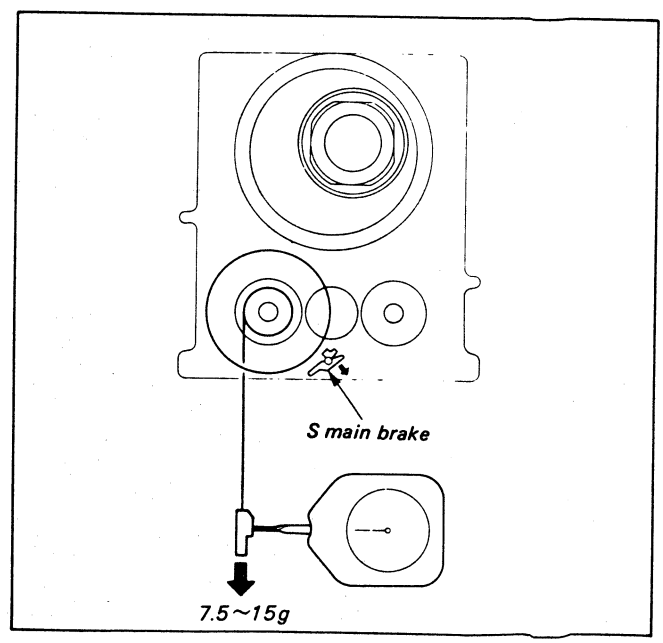


Fig. 3-66.

2. REW Brake Torque

1) Set to FF/REW mode.
2) Place the tension measurement reel (Ref No.J-8) on the T reel table.
3) Pull the dial tension gauge (Ref No.J-6) in the direction of the arrow and confirm that the specifications are met. (Fig. 3-67)

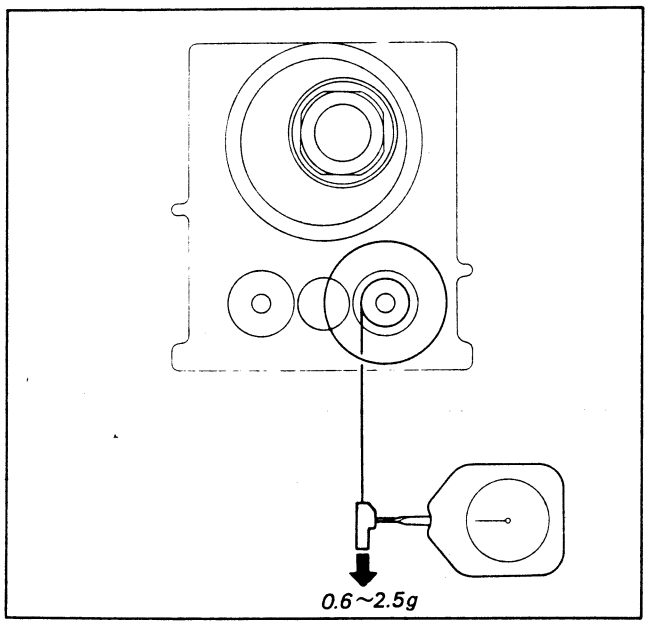
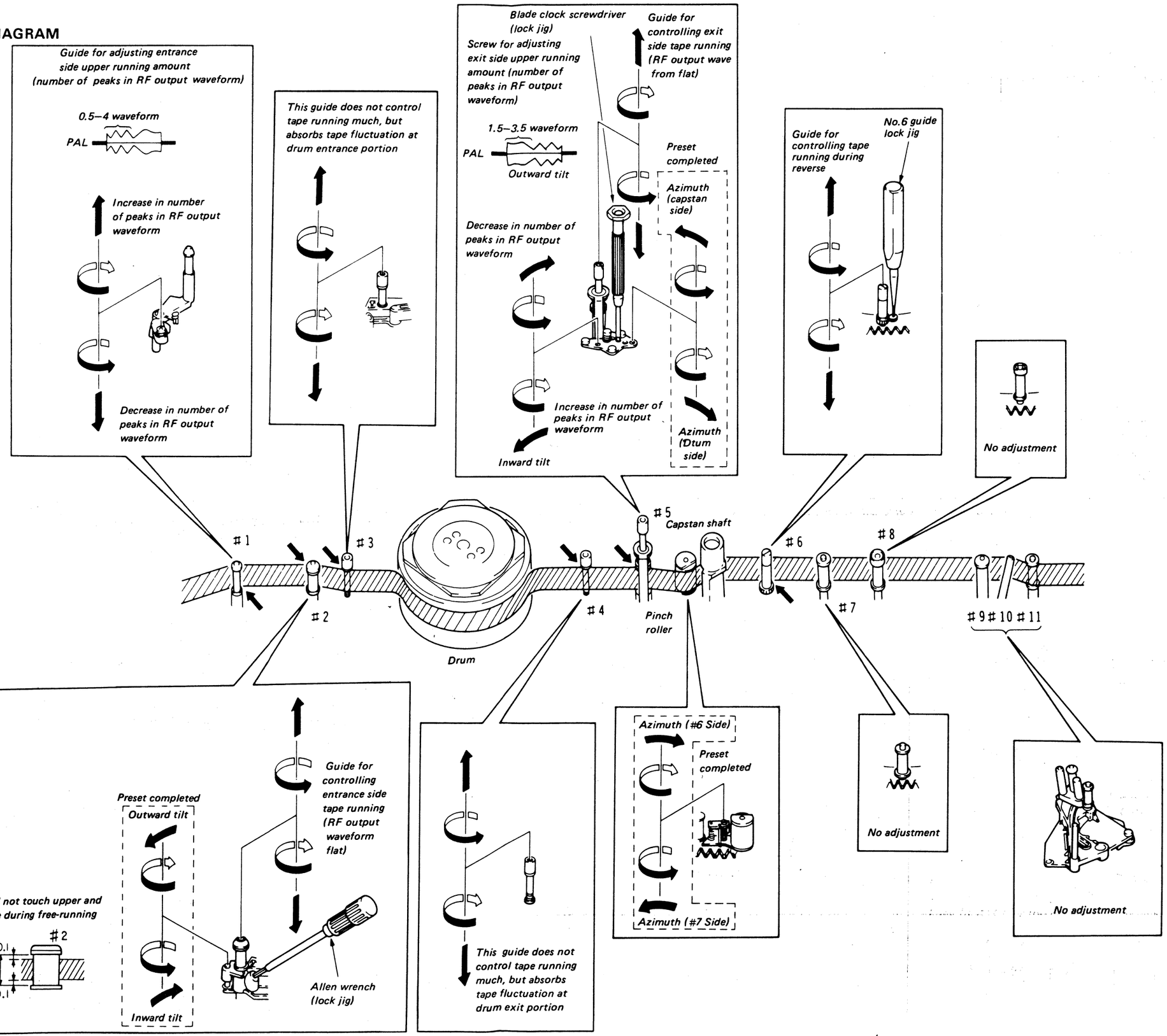


Fig. 3-67.

3-27. CHECK BY FWD, RVS WINDING TORQUE CASSETTE

1) Insert the FWD, RVS winding torque cassette (Ref No.J-12).
2) Set for playback mode and confirm that T reel table torque is 9.5~15.5 g • cm.
3) Set for playback mode, and check that the S reel torque immediately after the REW button is pressed is 17-23 g • cm.
4) Replace the appropriate reel table if the above specifications are not met.

4. TAPE PATH ADJUSTMENT
TAPE RUNNING SYSTEM DIAGRAM



240

[REGARDING TRACK SHIFT & MONITOR JIG]

The video 8 system employs a high precision tracking ATF (auto track finding) and instantaneously controls the tape running speed with the 4 kinds pilot signals. In this way, the tracking adjustment knob becomes unnecessary, and accurate tracking has become possible.

However, on the other hand, there has been difficulty in adjusting the tape path system with the ATF method. It was due to the fact that complete adjustment had been impossible to be performed because even when the tracing of the head had been a slightly off course, the ATF would perform correction automatically.

Because of this, adjustment is carried out to the tape path system by using the track shift & monitor jig (Ref. No. J-6080-851-A). As the track shift and monitor jig forcibly releases the ATF and sets the tracking amount (track shift) manually, the adjustment of the tape path system can easily be carried out.

Perform this adjustment after the electrical adjustment of Section 5 has been completed.

4-1. CONNECTION WITH TRACK SHIFT AND MONITOR JIG

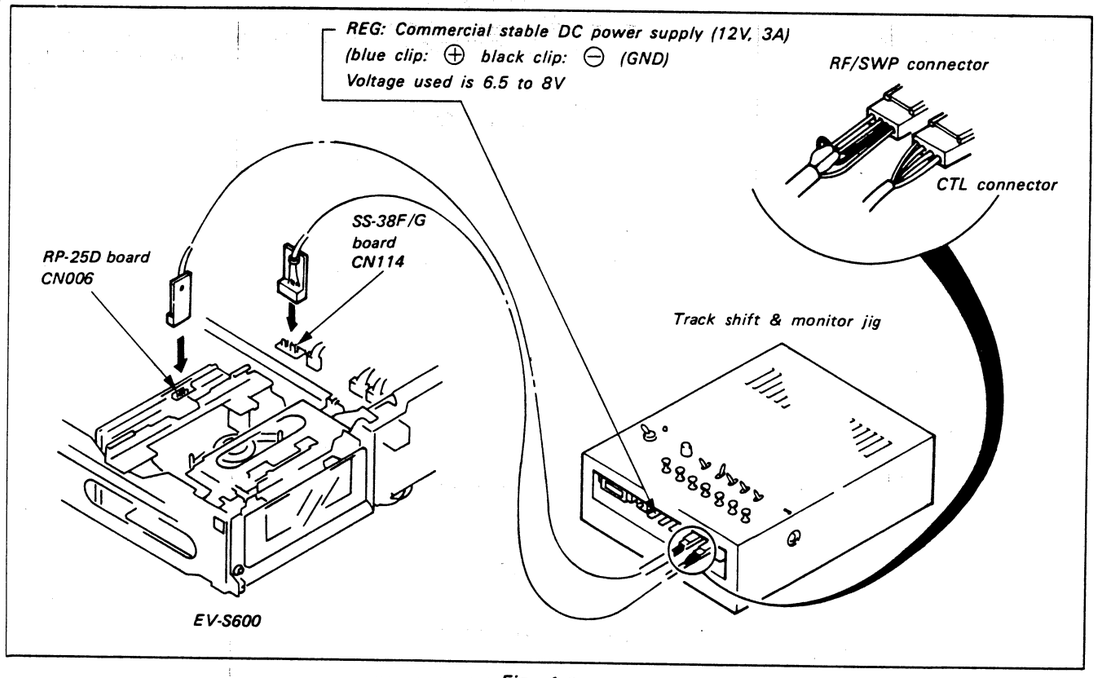


Fig. 4-1

[Track Shift & Monitor Jig Power Supply]

The track shift & monitor jig has three types of connectors for external power supply, and the following three types of power supply can be used.

Connector Name	Power Supply
SYSTEM CONN	Connect modified CCD-V8E/UB AC adapter AC-V8 E/UB. (Refer to the track shift and monitor jig instruction manual for the modification procedure.)
AC ADP	Betamovie AC adapter AC-M100E/UB is connected.
REG	Connect commercially sold DC stable power supply of more than 12V3A and use at 6.5 ~ 8V. Be sure to make correct ⊕ and ⊖ connections.

- Two or more types of power supply can not be used at the same time.
- Use the connector supplied with the track shift & monitor jig when connecting.
- Power supplies or voltages other than those given above should not be used.
- When using the modified AC-V8E/UB, the circuit power supply is cut off about 10 seconds after the AC-V8E/UB power switch is turned off.
- Power is not supplied to EV-S600 itself, so be sure to supply AC power to it at the same time.

[Connector Connection]

Connect the track shift & monitor jig and EV-S600 as shown in Figure 4-1. Connect RF/SWP connector to RP-25D board CN006, and the CTL connector to SS-38F/G board CN114. board CN114.

[Switch Settings]

SEL switch: Set to ON when doing track shift. When OFF, control is from EV-S600 side.
PATTERN switch: Set to EV side.
ATF LOCK: Set to OFF.
Other switches are not used during EV-S600 adjustment.

4-2. PREPARATION FOR ADJUSTMENT

1) Perform cleaning of the tape running surface (the individual tape guides drums, capstan shafts and pinch rollers).
2) Connection of oscilloscope
   1ch: CH2 pin (RF signal)
   2ch: RF SWP pin (RF SWP signal)
   (Fig. 4-1)
3) Set the SEL switch of the track shift & monitor jig to OFF, then play back the alignment tape (WR5-1C) for tracking, and confirm that the RF waveform of both the entrance and exit sides become flat (Fig. ⓐ in 4-2). If the RF waveform of both sides is not flat, the adjustment should be carried out in accordance with the following.
   * In case the RF waveform on the entrance side is not flat (Fig. ⓑ in 4-2) . . . Perform the adjustment in Item 4-2, Entrance side adjustment.
   * In case RF waveform on the exit side is not flat (Fig. ⓒ in 4-2) . . . Perform the adjustment in Item 4-3, Exit Side Adjustment.

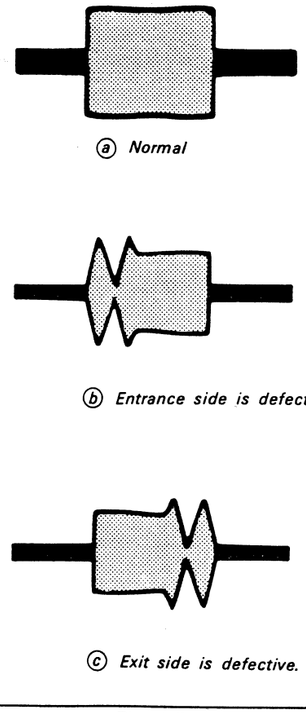


Fig. 4-2

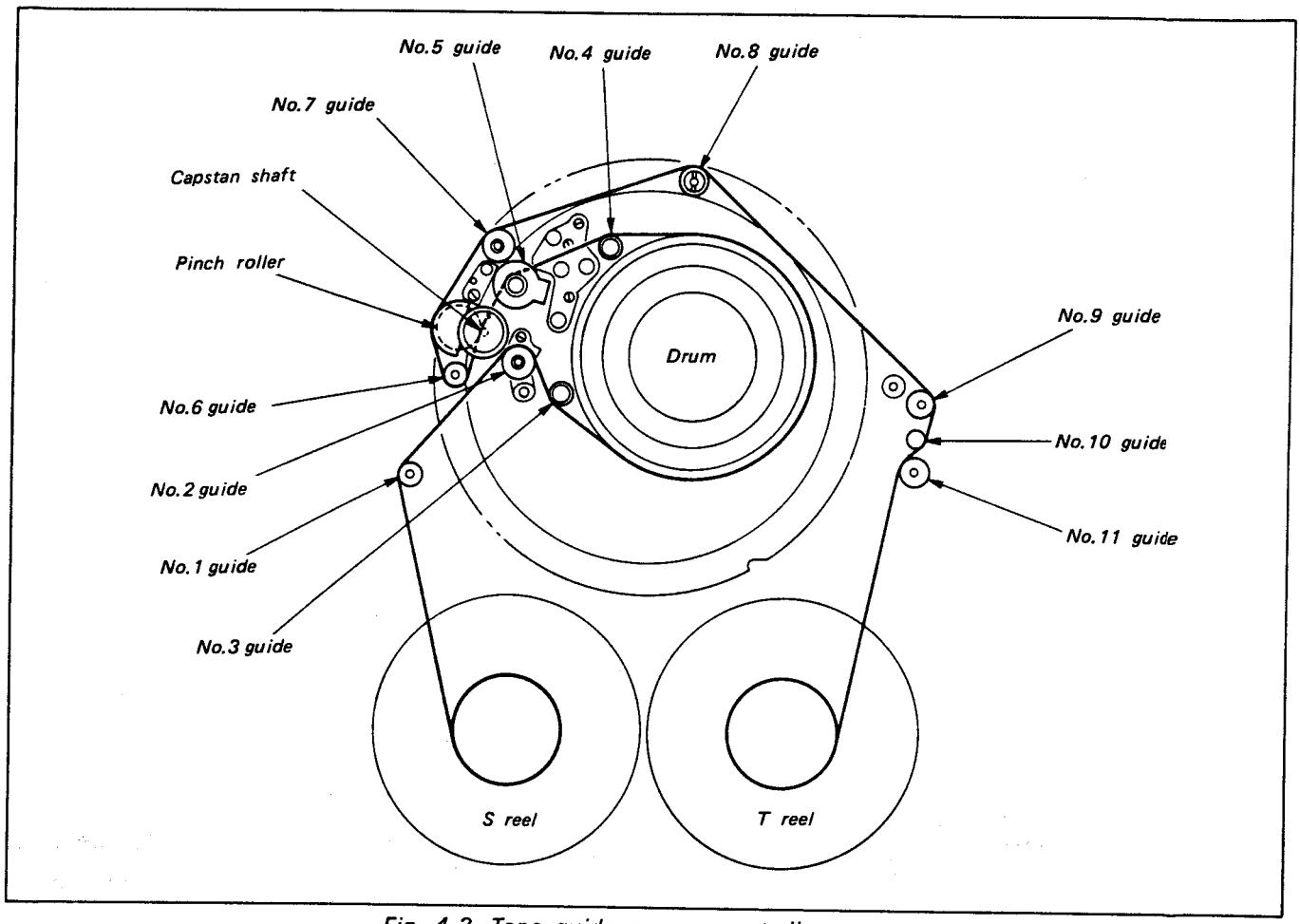


Fig. 4-3. Tape guide arrangement diagram

4-3. ENTRANCE SIDE ADJUSTMENT

1) Play back the tracking alignment tape (WR5-1C) and loosen No.2 guide lock screw ❶, and rotate No.2 and No.3 guides counterclockwise to free tape running on the entrance side. (Fig. 4-4)

Note: Since the space between the top and bottom flanges of No.2 guide is narrow, confirm that the tape is contacting neither top nor bottom flanges at this point. If No.2 guide is loosened excessively, the tape contacts the bottom flange and the RF waveform on the entrance side ceases to be the original free waveform.

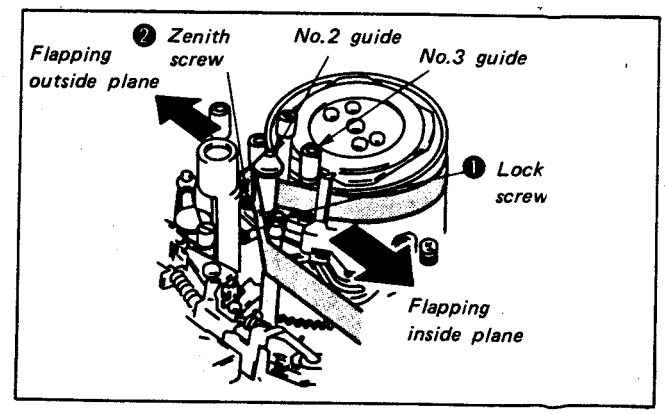


Fig. 4-4

2) Confirm that RF waveform on the entrance side has 0.5 to 3.5 peaks in this condition. If not, adjust as follows. (Fig. 4-5)

[less the 0.5 peak]

Adjust the No.2 guide zenith screw ❷ by turning it counterclockwise 90° at a time. (Fig. 4-4)

[mere than 3.5 peaks]

Adjust the height adjustment screw of No.1 guide (tension regulator assembly) by turning it counterclockwise 90° at a time. (Fig. 4-6)

3) Slowly rotate the No.2 guide clockwise to make the entrance side waveform approximately flat. (Fig. 4-7)
   Note: Do not rotate No.2 guide excessively.
4) Set the SEL switch of the track shift & monitor jig to ON, then turn the track shift knob until the RF waveform amplitude is 2/3. (Fig. 4-8)
5) Turn No.2 guide so that the entrance side waveform flattens slightly. (Fig. 4-9)
6) Flatten the waveform with No.3 guide. (Fig. 4-10)
7) Tighten No.2 lock screw ❶. (Fig. 4-4)
   Note: Be sure to perform checking in accordance with 4-5.

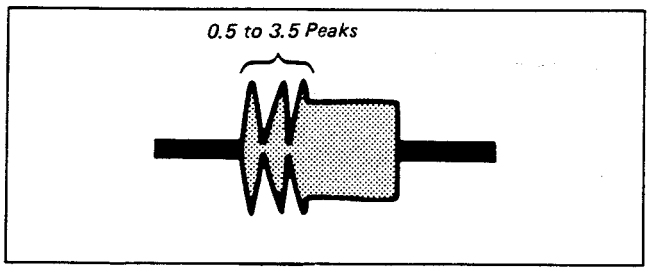


Fig. 4-5

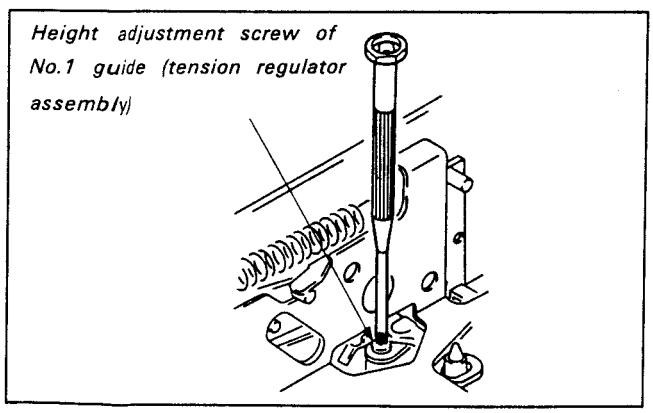


Fig. 4-6

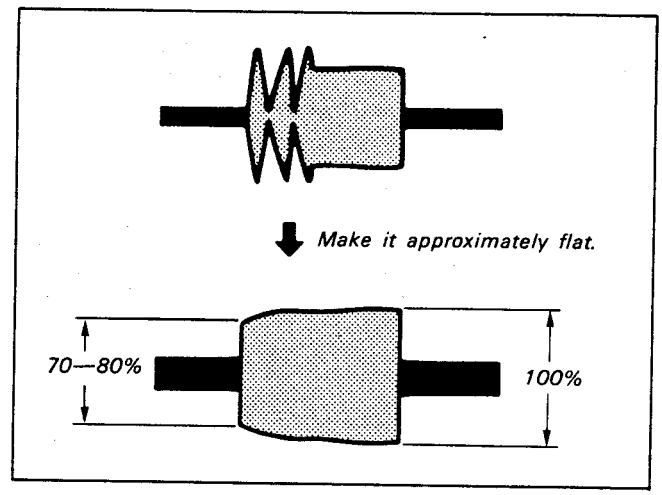


Fig. 4-7

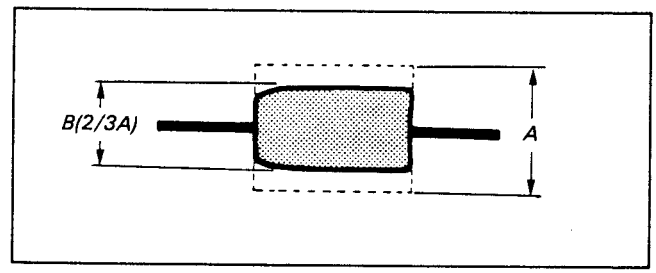


Fig. 4-8

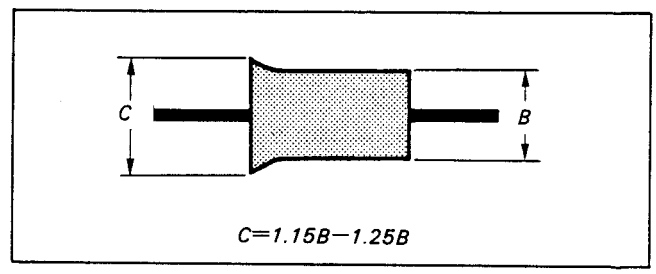


Fig. 4-9

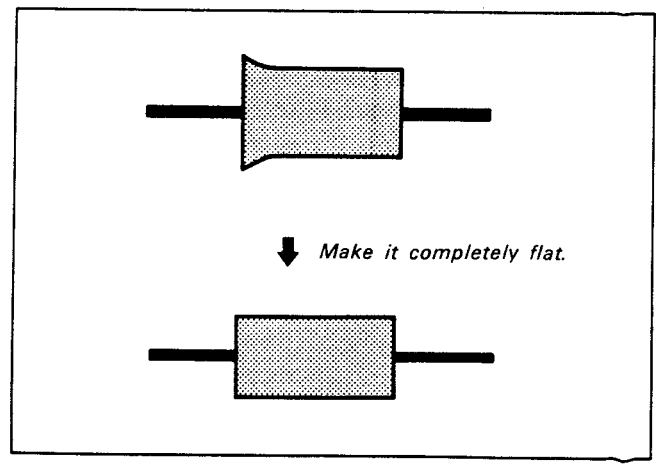


Fig. 4-10

4-4. EXIT SIDE ADJUSTMENT

1) Play back the alignment tape (WR5-1C) for tracking. Rotate No.4 guide counterclockwise and No.5 guide colockwise in order to make the tape running on the exit side free. (Fig. 4-11)

Note:
- **If screw lock is stuck to the No. 5 guide nut, it may prevent the nut from rotating. Rotate the guide after immersing the nut thread into alcohol and to dissolve the screw lock agent.**
- **Check that the tape is not contacting the top and buttom of flanges of No.5 guide during free tape running.**

2) Check that the RF waveform on the exit side has 1.5 to 3.5 peaks. If not, readjust as follows: (Fig. 4-12)

If off standard

i) Rotate the lock screw ❶ counterclockwise to loosen.
ii) Slowly rotate the zenith screw ❷ 45° at a time and wait until the RF waveform varies.
iii) Rotate the lock screw ❶ clockwise to tighten. (Fig. 4-11)

Note:
- **The waveform varies if the lock screw is tightened too strongly. Tighten moderately.**
- **Never rotate the azimuth screw of No.5 guide.**

3) Rotate No.5 guide counterclockwise to make the RF waveform on the exit side approximately flat. (Fig. 4-13)

Note: The waveform reaction is slow against nut rotation. Rotate the nut after the waveform variations are stabillzed.

4) Set the SEL switch of the track shift & monitor jig to ON. then turn the track shift knob until the RF waveform amplitude is 2/3. (Fig. 4-14)
5) Turn No.5 guide so that the exit side waveform flats slightly. (Fig. 4-15)
6) Turn No.4 guide so that waveform flat. (Fig. 4-16)

Note: Be sure to perform checking in accordance with 4-5 after making the adjustment.

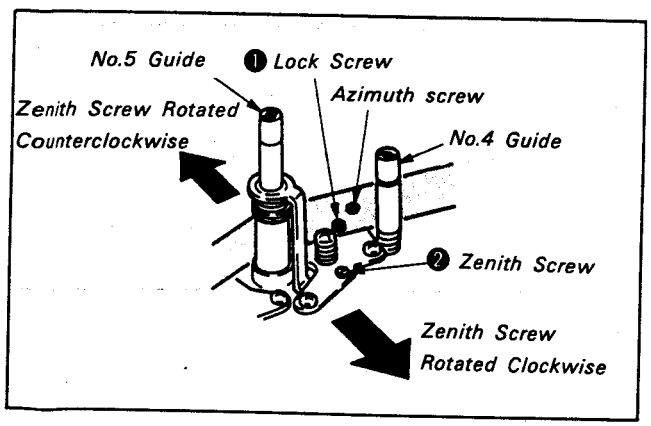


Fig. 4-11

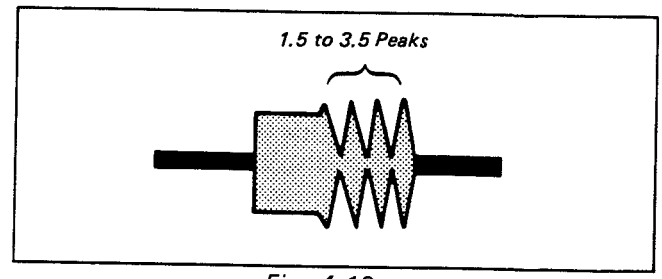


Fig. 4-12

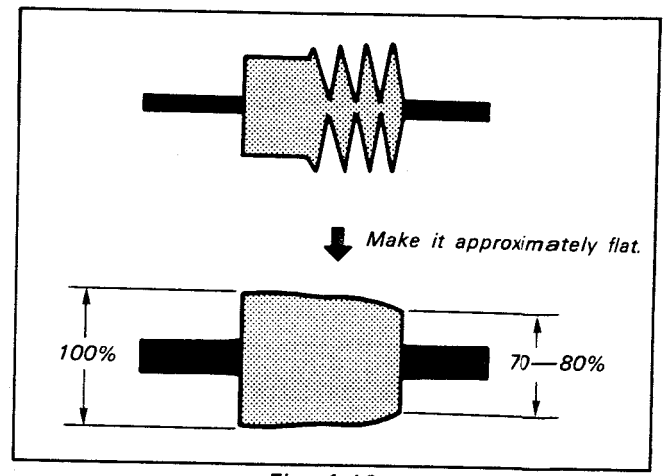


Fig. 4-13

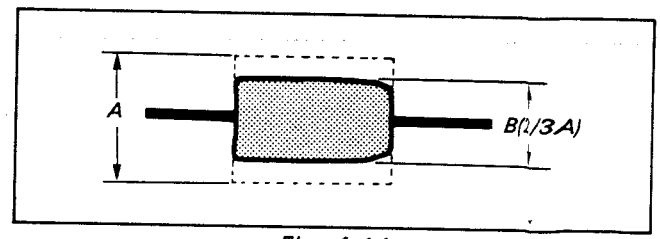


Fig. 4-14

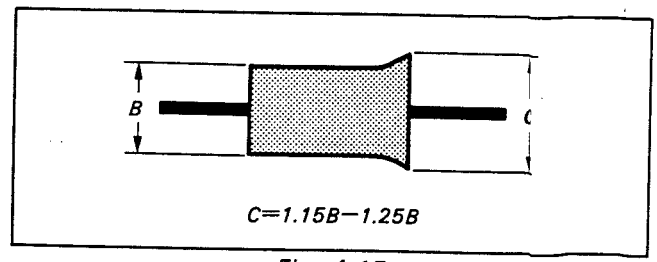


Fig. 4-15

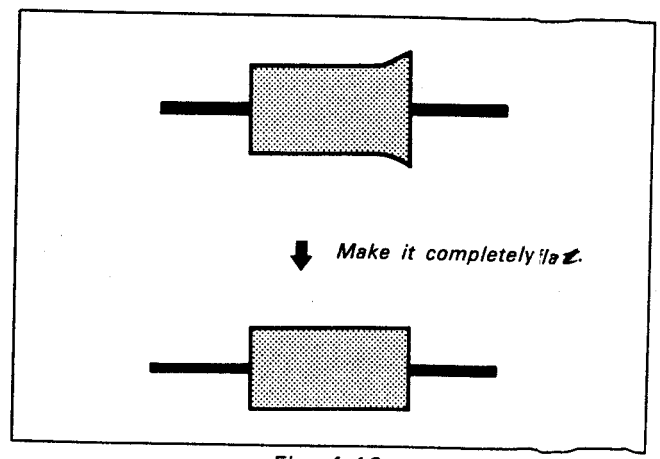


Fig. 4-16

4-5. CHECKING AFTER ADJUSTMENT

4-5-1. Tracking check

1) Play back the alignment tape (WR5-1C) for tracking.
2) Set the SEL switch of the track shift & monitor jig to ON, and turn track shift knob until the RF waveform amplitude is 2/3. (Fig. 4-17)

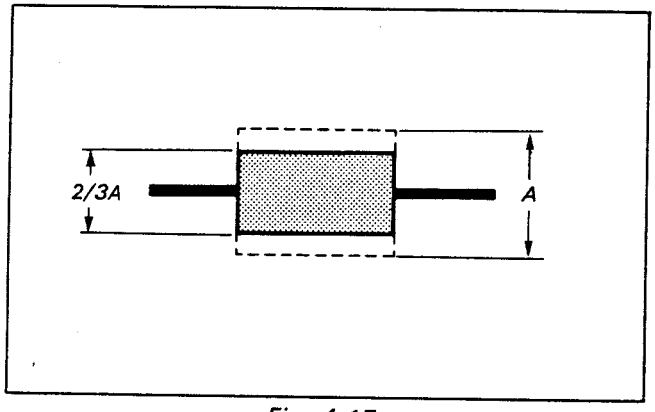


Fig. 4-17

3) Confirm that the RF waveform amplitude minimum value (E min) at this time is more that 80% of maximum value (E max.). (Fig. 4-18)

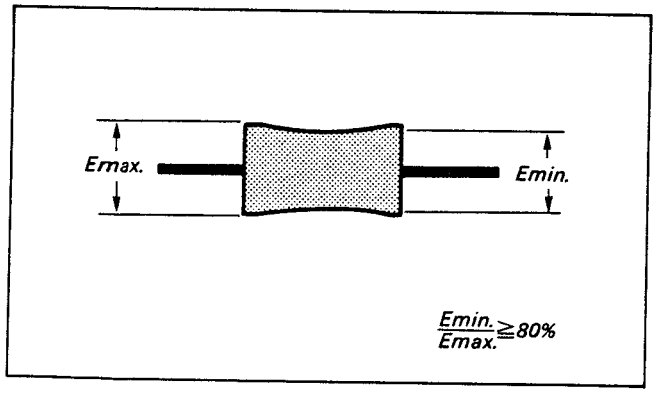


Fig. 4-18

4) Check that the fluctuation amount of RF waveform entrance and exit sides both is as shown in Fig. 4-18.

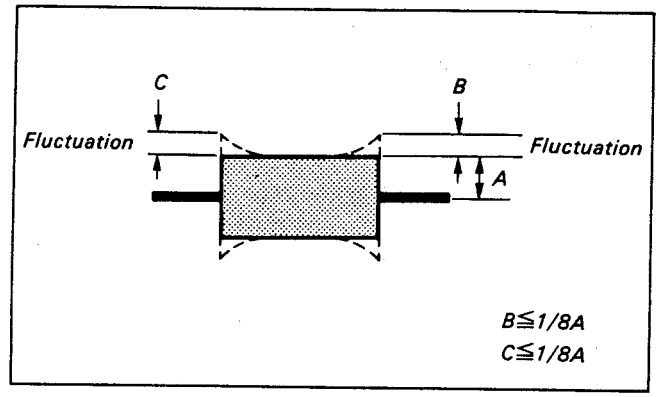


Fig. 4-19

5) Set the SEL switch of the track shift & monitor jig to OFF.
6) Set up the REV mode and confirm that the waveform noise pitches are uniform. If not, adjust as follows. (Fig. 4-20)

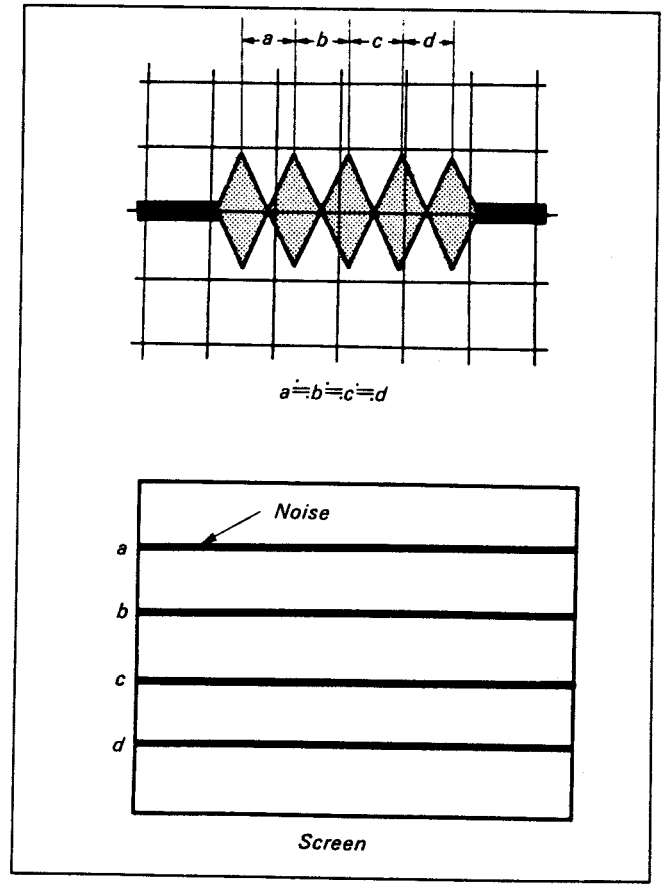


Fig. 4-20

[Narrow noise pitch on entrance side (upper screen)]
(Fig. 4-21)
Confirm that the RF waveforms are flat in the PLAYBACK mode.

Waveform is not flat:
Adjust the heights of No.2 and 3 guides as in 4-3. Entrance Side Adjustment.

Waveform is flat:
Check again by performing No.1 guide height and No.2 guide zenith adjustment according to 4-3. Entrance Side Adjustment.

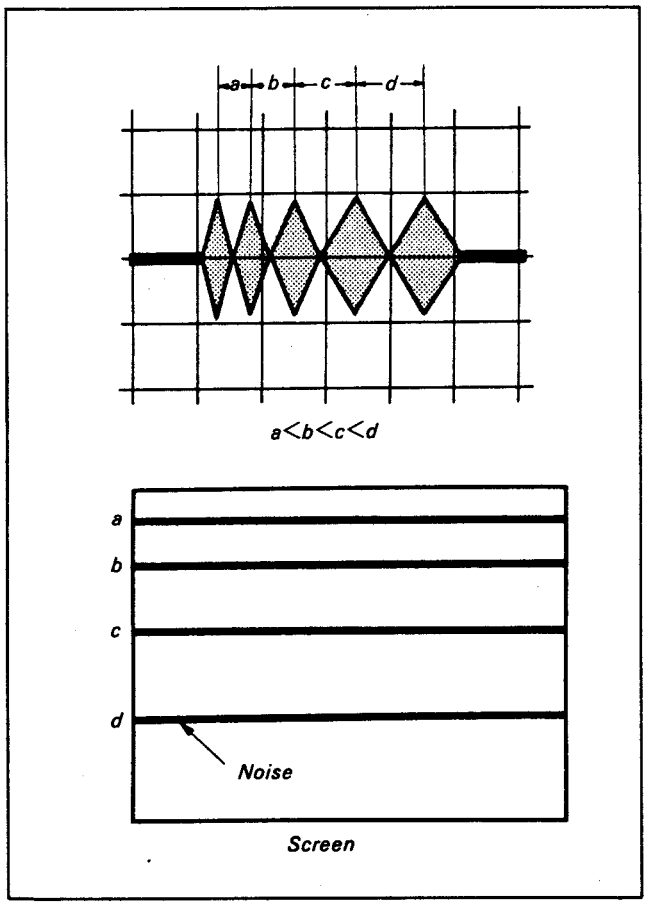


Fig. 4-21

[Narrow noise pitch on exit side (lower screen)]
(Fig. 4-22)
Set up the PLAYBACK mode and adjust No. 4 and 5 guide heights in accordance with 4-4. Exit Side Adjustment.

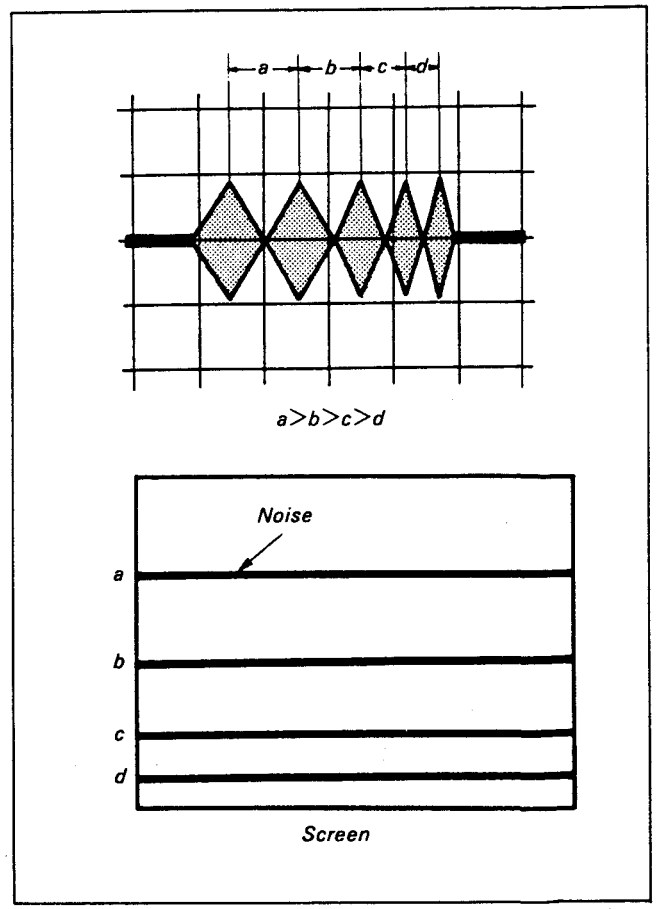


Fig. 4-22

[Wide noise pitch on exit side (lower screen)]
(Fig. 4-23)
Set up the PLAYBACK mode and confirm that the RF waveform is flat.

Waveform is not flat:
Adjust height of No.4 and 5 guides in accordance with 4-4. Exit Side Adjustment.

Waveform is flat:
Rotate the guide lower toothed wheel counterclockwise with No.6 guide lock jig (Ref. No.J-11) to loosen the toothed wheel. Rotate No.6 guide counterclockwise 45° to tighten the lower toothed wheel. Confirm the RF waveform of the REV mode again. (Fig. 4-24)

Note: Wrinkles may be caused in Part Ⓐ between the capstan spindle and No.5 guide, if No.6 guide is raised excessively. Confirm that no wrinkles have been caused. (Fig. 4-25)

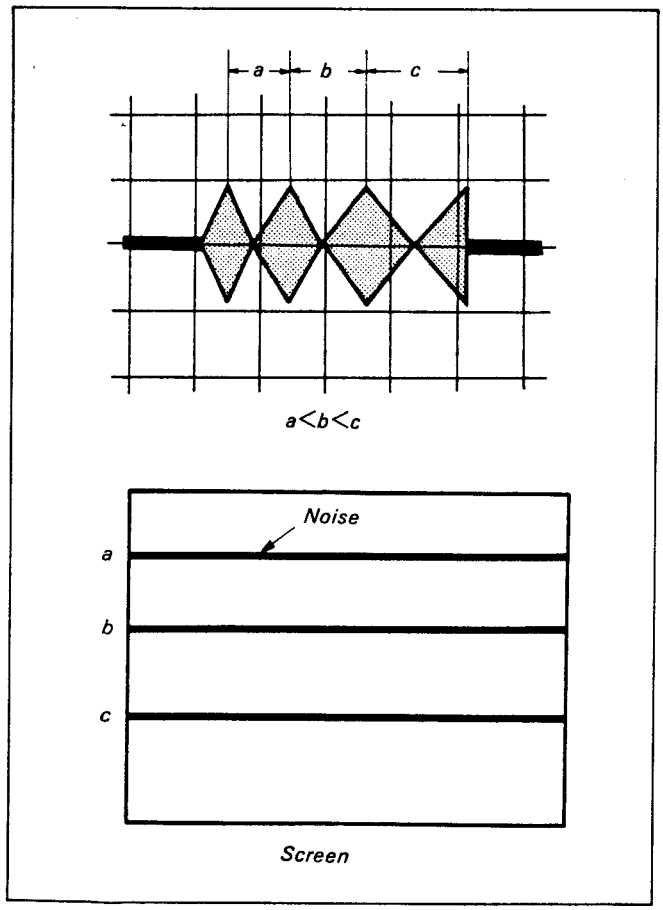


Fig. 4-23

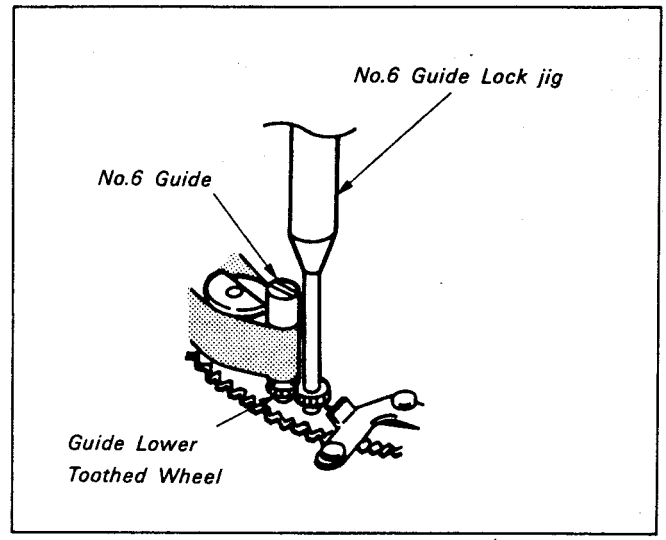


Fig. 4-24

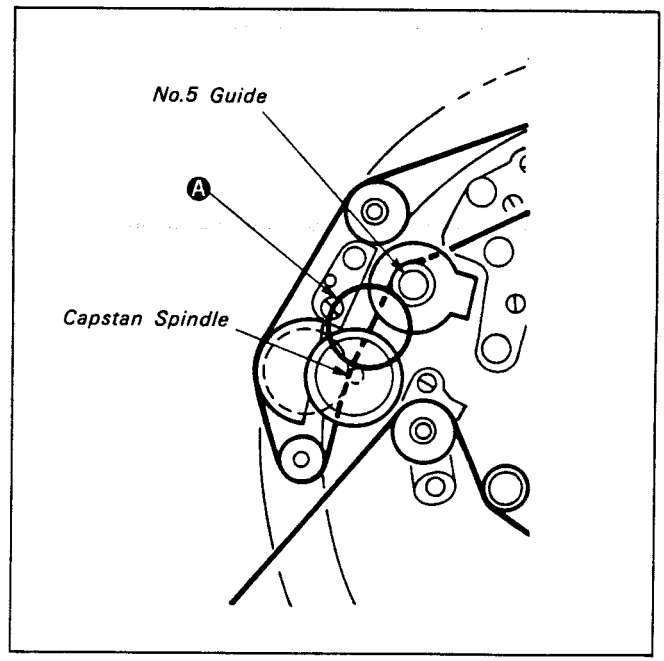


Fig. 4-25

4-5-2. Checking rising edge

1) Check that the RF waveform rises horizontally during playback after finishing loading, after CUE/REV, and during playing back after FF. If not, adjust as follows.

[Noise emits from the exit side (lower screen) with rising during playback after finishing loading]
(Fig. 4-26)
Check that the FWD back tension is not too low.
If too low:
Readjust as instructed in 3-21. FWD Back Tension Adjustment.
If normal:
Rotate the azimuth screw of the pinch roller clockwise 15° at a time and adjust after rechecking the rising edge. (Fig. 4-27)

[Noise emits from the exit side (lower screen) with rising during playback after REV]
(Fig. 4-26)
Loosen the guide lower toothed wheel of No.6 guide using No.6 guide lock jig, rotate No.6 guide 90° counterclockwise to tighten the toothed wheel, then recheck the rising edge.
Note: Wrinkles may be caused in Part Ⓐ of Fig. 4-25, if No.6 guide is raised excessively at this time, between the capstan spindle and No.5 guide, so check that no wrinkles are caused.

[Noise emits from the exit side (lower screen) with rising during playing back after FF]
(Fig. 4-26)
Confirm that the FWD back tension is not too low.
If too low:
Readjust as required in 3-21. FWD Back Tension Adjustment.
If normal:
Remote the azimuth screw of the pinch roller clockwise by 15° at a time and adjust after checking the rising edge. (Fig. 4-27)
Note: Be sure to check play rising after finishing loading in case an adjustment is made.

4-5-3. Tape running check

In playback and REV modes, there should be no spaces and curl should be within 0.3 mm for No.1, 2 and 5 guides at No.1—No.6 guide flanges (Fig. 4-28). Check also that there is no space or curl at No.3, 4 and 6 guides.

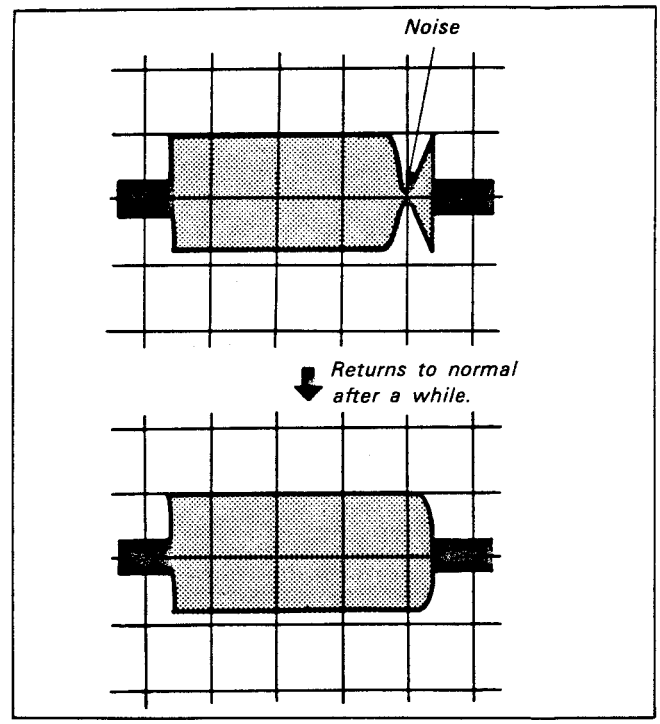


Fig. 4-26

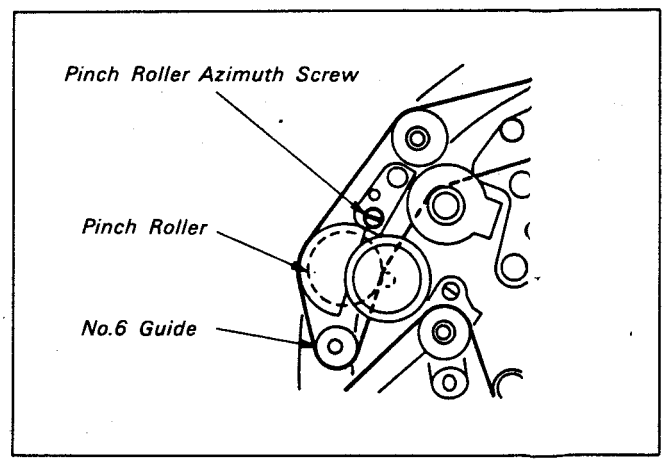


Fig. 4-27

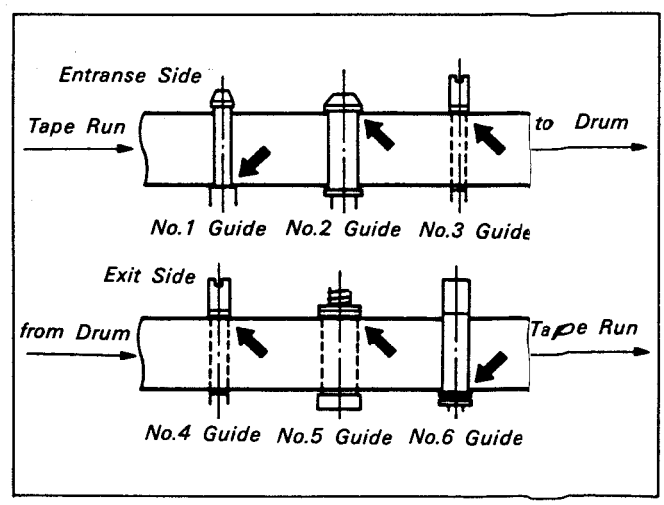


Fig. 4-28

5. ELECTRICAL ADJUSTMENT

The following measuring instruments are needed for electrical adjustment.

[Equipment]

1) Monitor TV
2) Oscilloscope, dual trace, band 10 MHz or wider, with delay mode (Use a 10:1 probe unless otherwise specified)
3) Frequency counter
4) Pattern generator
5) Digital voltmeter
6) Audio generator
7) Audio level meter
8) Audio distortion meter
9) Audio attenuator
10) Alignment tapes

Tracking adjustment (WR5-1C)
Parts code: 8-967-995-06

Video frequency response adjustment (WR5-2C)
Parts code: 8-967-995-16

Operation check (WR5-3CL)
Parts code: 8-967-995-36

Operation check (WR5-3CSP)
Parts code: 8-967-995-27

[Equipment Connection]

Unless otherwise specified, adjustment is made by connecting the measuring instruments as shown below.

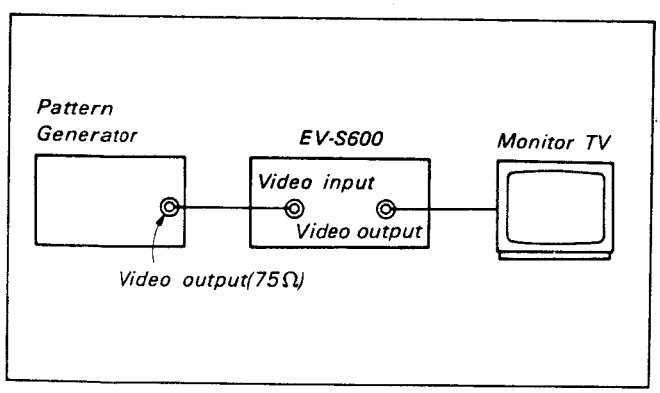


Fig. 5-1.

Setting up during adjustment

Video signals output by a pattern generator are used as adjustment signals when making the electrical adjustments, and these video output signals should be within the required standard. Connect an oscilloscope to Pin ⑳ of CN006 (VIDEO IN) on the VI-9A Board. Check that the amplitudes of video signal SYNC signals, picture portions, and burst signals are flat at approximately 0.3, 0.7, and 0.3V, respectively, and that the level ratio of the burst signal and "red" signal is 0.30:0.66. Fig. 5-2. shows video signals (colour bars) used in making the electrical adjustment.

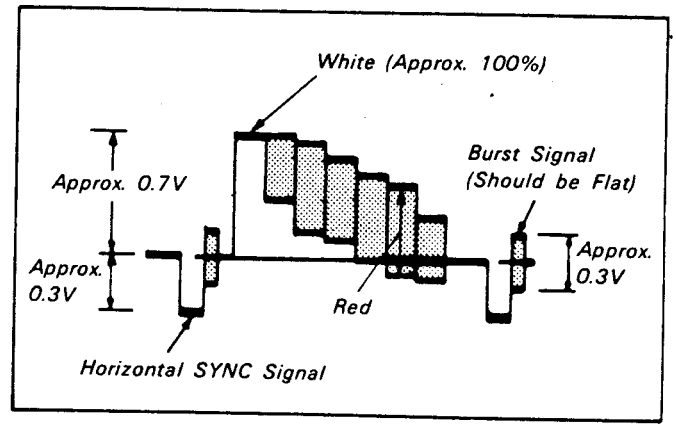
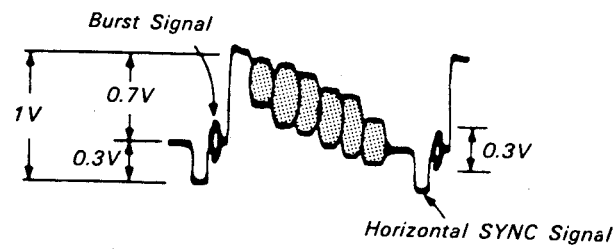
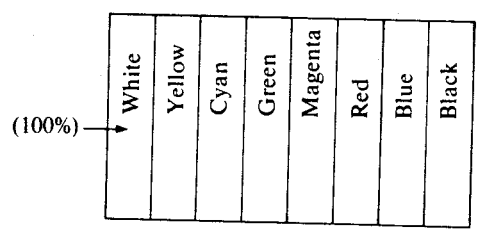


Fig. 5-2. Pattern Generator Colour Bar Signals

[Alignment tape]

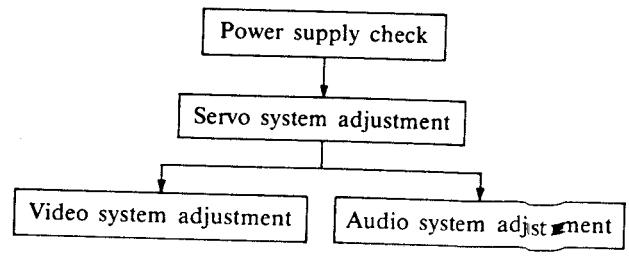
Tape	Content	Use
Tracking (WR5-1C)	1. Recording area: PCM — video 2. Recording content: CH2: 1 MHz linearity adjustment signal (CH1: 9 MHz)	Drum linearity adjustment
Video Frequency Response (WR5-2C)	1. Recording area: Video 2. Recording content: RF sweep 0 to 10 MHz 3. Marker: 1, 3.58, 5.5 and 7 MHz	Grequency response adjustment
Operation Check SP mode WR5-3CSP LP mode (WR5-3CL)	1. Recording area: Video 2. Recording content: ■ Video track • Video signals Colour bars 10 sec, Monoscope 8 sec } Iterative (Colour bars)   • Audio signals (AFM) 400 Hz 60% modulation ■ PCM track (WR5-3CSP only) • Audio signals (PCM) 1kHz 0dBs 10sec 20Hz −6dBs 2sec 400Hz −6dBs 4sec 14kHz −0.7dBs 2sec } Iterative	Operation check

Input/output level and impedance of EUROCONNECTOR

Video input (Pin ⑳)
Input signals: 1 Vp-p, 75Ω unbalanced, sync negative
Video output (Pin⑲)
Output signals: 1 Vp-p, 75Ω unbalanced, sync negative
Audio input (Pin ⑥)
Input level: −6 dBs (0 dBs = 0.775 Vrms)
Input impedance: 10 kΩ or higher
Audio output (Pins ① and ③)
Regulated output: −6 dBs
Load impedance: 1 kΩ or lower

Adjustment Procedure

Adjust in the following sequence:



5-1. POWER SUPPLY CHECK

Measure in E-E mode.

1) REG 9V Check (PS-85A board)
   Voltage between CN209 Pin ③ (9V) and CN209 Pin ⑥ (GND) should be 9.0 ±0.1V DC.
2) REG 5V Check (PS-85A board)
   Voltage between CN206 Pin ① (5V) and CN206 Pin ② (GND) should be 5.1 ±0.1V DC.
3) UN SWD 5V Check (PS-85A board)
   Voltage between CN207 Pin ⑥ (UN SWD 5V) and CN207 Pin ① (GND) should be 5.4 ±0.2V DC.
4) Back up 5V Check (PS-85A board)
   Voltage between CN207 Pin ⑦ (Back up 5V) and CN207 Pin ① (GND) should be 5.4 ±0.2V DC.
5) DRIVE 5V Check (PS-85A board)
   Voltage between CN207 Pin ② (DRIVE 5V) and CN207 Pin ① (GND) should be 5.4 ±0.2V DC.
6) DRIVE 9V Check (PS-85A board)
   Voltage between CN208 Pin ④ (DRIVE 9V) and CN208 Pin ③ (GND) should be 8.6 ±0.2V DC.
7) UN SWD 40V Check (PS-84A/B board)
   Voltage between CN103 Pin ② (UN SWD 40V) and CN102 Pin ③ (GND) should be 50 ±3V DC.
8) UN SWD −30V Check (PS-84A/B board)
   Voltage between CN103 Pin ① (UN SWD −30V) and CN103 Pin ② (GND) should be −28.5 ±1.5V DC.
9) AC 5.6V Check (PS-84A/B board)
   Voltage between CN101 Pin ③ and Pin ⑤ (AC 5.6V) should be 5.0 ± 0.3 Vrms.
10) UN SW 9V Check (PS-85A board)
    Voltage between CN210 Pin ② (UN SWD9V) and CN210 Pin ④ (GUD) should be 9.4V ± 0.3 VDC
11) AUDIO 6V Check (PS-85A board)
    Voltage between CN210 Pin ③ (AUDIO 6V) and CN210 Pin ④ (GND) should be 6.2V ± 0.3VDC
12) AUDIO-6V Check (PS-85A board)
    Voltage between CN210 Pin ⑤ (AUDIO-6V) and CN210 Pin ④ (GND) should be −6.2V ± 0.3VDC
13) UN SWD-9V Check (PS-85A board)
    Voltage between CN210 Pin ⑥ (UN SWD-9V) and CN210 Pin ④ (GND) should be −9.4V ± 0.3VDC
14) UN SWD 12.6V Check (PS-85A board)
    Voltage between CN204 Pin ① (UN SWD 12.6V) and CN204 Pin ② (GND) should be 12.6V ± 0.3VDC

[Solder side]

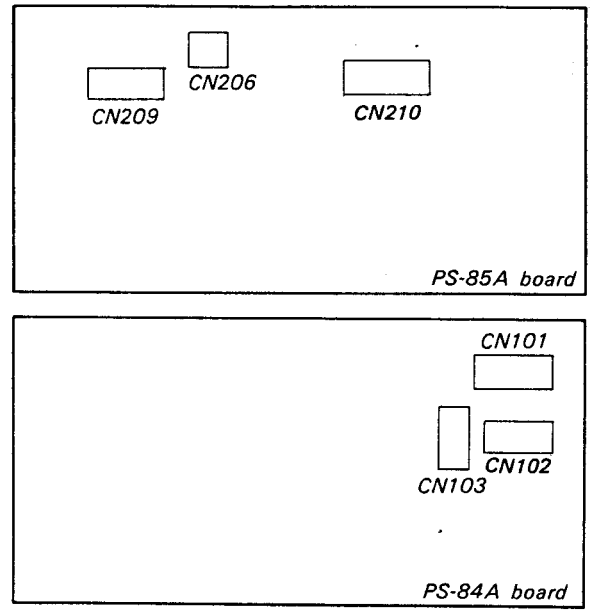


Fig. 5-3.

5-2. SERVO SYSTEM ADJUSTMENT

Note: Perform the following checks before performing servo system adjustment. (SS-38F, SS-38G board)

1) Drum Bias Check

Check that IC201 Pin ⑫ DC voltage is 2.0 ±1.0V in REC, SP/LP modes.

2) Drum Phase Lock Check

Make sure that it is within the range shown in Figure 5-4 in REC, SP/LP modes.

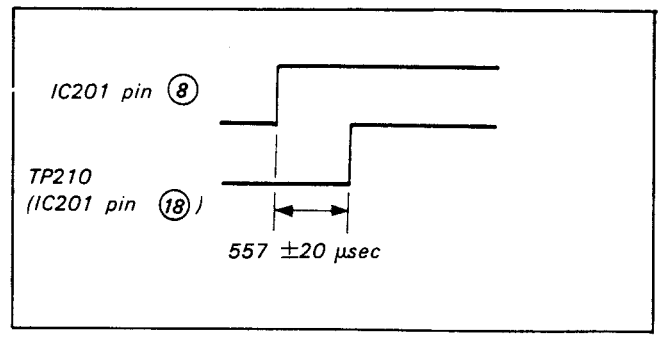


Fig. 5-4.

5-2-1. Capstan DC Bias Adjustment (SS-38F, SS-38G Board)

Within the brackets [ ] indicates LP mode adjustment elements.
Mode: PLAYBACK
Tape: Optional
Frequency counter: TP204 (IC201 Pin ㉓ : CAP FG)
Connection: Connect a 47 μF/6.3V power supply capacitor between TP301 (IC301 Pin ①) and GND. (positive pole on TP301 side)

[Adjustment Procedure]
Adjust to 1339 ±1 Hz [669 ±1 Hz] with RV102 [RV202].

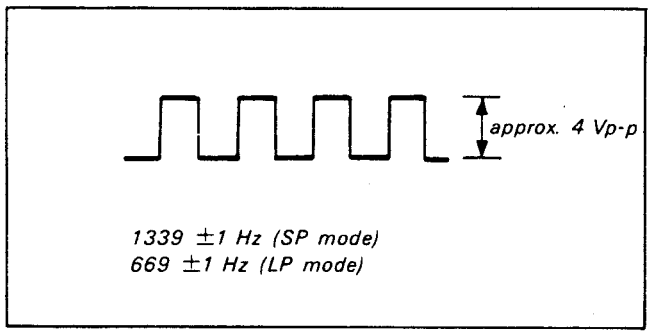


Fig. 5-5.

SS-38F board . . . . . AEP Model.
SS-38G boaed . . . . . UK Model.

5-2-2. Switching Position Adjustment (SS-38F, SS-38G, VI-9AG Boards)

Mode: PLAYBACK
Alignment tape: Operation check (WR5-3CSP)
Oscilloscope CH1: VI-9AG Board Pin ⑲ of CN006 (VIDEO OUT)
CH2: SS-38F, SS-38G Board Pin ⑧ of IC201 (RF SW PULSE)

[Adjustment Procedure]
Adjust to 6.5 ±0.3H (416 ±20 μsec) using RV203 on the SS-38F Board.

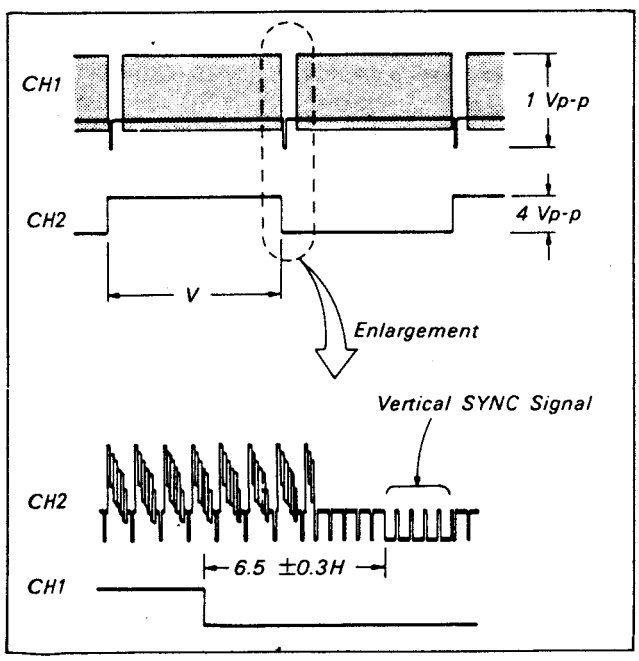


Fig. 5-6. Switching Position Adjustment

5-2-3. Tracking Adjustment (SS-38F, SS-38G, RP-25D Boards)

Mode: PLAYBACK
Tape: Self-recorded tape
SP/LP: SP mode
Input: LINE mode
Recorded with no signal input
Oscilloscope: RP-25D board CN6 Pin ⑤ (RF OUT)

[Adjustment Procedure]
Adjust so that RF output level is maximum with SS-38F, SS-38G board RV301.

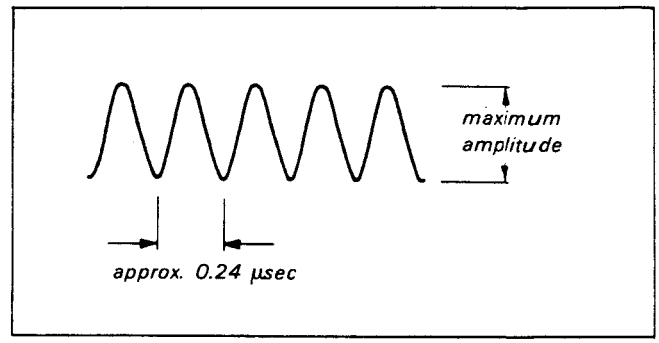


Fig. 5-7.

5-2-4. SLOW Adjustment (SS-38F, SS-38G Board)

Mode: PLAYBACK PAUSE + SLOW
Tape: Self-recorded tape
Adjustment elements of SP mode are shown in parentheses.

[Adjustment procedure]
Adjust with RV402 [RV401] so that noise is not audible on the monitor screen (Noise emitting on the screen becomes less than 1/4 at the top and bottom of the screen). Perform confirmation of PB PAUSE → Continuous frame-by-frame forwarding (5 sec) → PB PAUSE three times after adjustment, and if the adjustment has become deviated, perform readjustment.

SS-38F board . . . . . AEP Model.
SS-38G boaed . . . . . UK Model.

5-3. VIDEO SYSTEM ADJUSTMENT

As a general rule, perform video adjustments in the order given below.
The colour video signal supplied from a pattern generator is used as the recording mode video system adjustment video input signal. Confirm that the colour burst signal and sync signal are within the specifications given in −2., set-up for adjustment.

[Adjustment order]

1) Playback Frequency Response Adjustment
2) Flying Erase Check
3) X'tal Oscillator fo Adjustment
4) SYNC AGC Pre-Adjustment
5) Y/C Separation Adjustment
6) Y Comb AGC Adjustment
7) SYNC AGC Adjustment
8) VIDEO OUT Level Adjustment
9) PB Y Level Adjustment
10) PB PAUSE Colour Level Adjustment
11) Y FM Carrier Frequency Adjustment
12) REC Y Level Adjustment
13) Y FM Deviation Adjustment
14) White Clip Adjustment
15) 375 fH VCO Adjustment
16) Chroma Emphasis fo Adjustment
17) Carrier Balance Adjustment
18) REC C Level Adjustment
19) REC Y ATF Level Adjustment
20) PCM ATF Level Adjustment
21) REC Y Recording Current Adjustment
22) REC PCM Recording Current Adjustment

5-3-1. Playback Frequency Response Adjustment (RP-25D Board)

• CH1, CH2

CH2 adjusting elements are shown in [ ].
Mode: PLAYBACK
Alignment tape: Frequency response adjustment (WR5-2C)
Oscilloscope CH1: Pin ③ of CN006 [Pin ② of CN006]
External trigger: Pin ① of CN006 [Pin ① of CN006]
Trigger slope: +, [−]

[Adjustment Procedure]

Adjust the ratio between the 3.58 and 5.5 MHz levels to 3:2 [4:3] using RV002 [RV001].

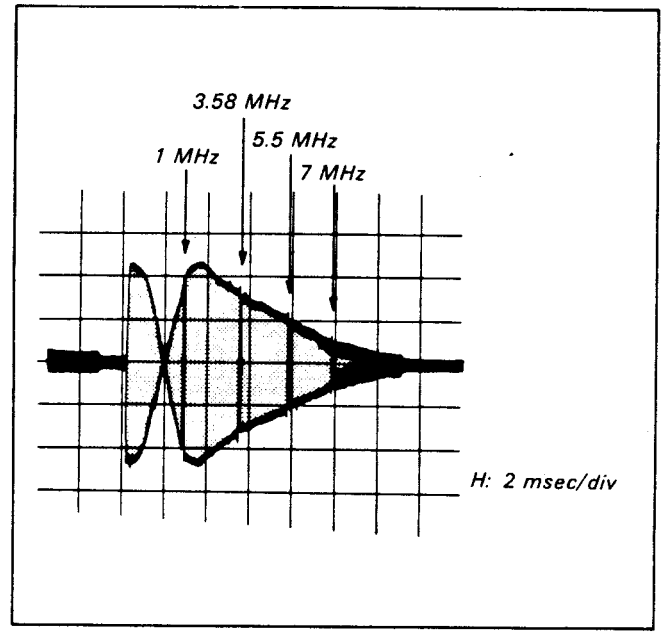


Fig. 5-8. Playback Frequency Response Adjustment

• CH1'

Mode: PLAYBACK PAUSE
Alignment tape: For operation check (WR5-3CL)

[Adjustment Procedure]

Adjust RV200 so that there is no black or white trailing noise at the top of the monitor picture for a monoscope pattern.

5-3-2. Flying Erase Check (RP-25D Board)

Mode: RECORD
Oscilloscope: Pin ① of CN005
[Checking Procedure]
The oscillation frequency should be 7 MHz or more and level 7.5 Vp-p or more.

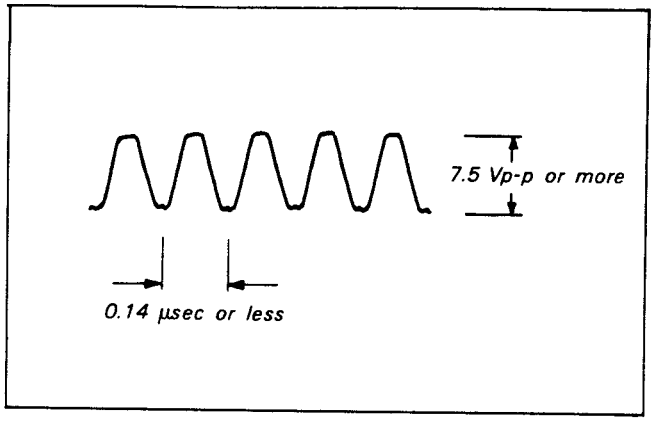


Fig. 5-9. Flying Erase Check

5-3-3. X'tal Oscillator fo Adjustment (VI-9AG Board)

Mode: PLAYBACK
Alignment tape: For operation check (WR5-3CSP)
Frequency counter: Pin ⑧ of IC003
Note: Connect the frequency counter through a buffer with high impedance (approx. 10 MΩ) and low capacity (less than 10 pF).
[Adjustment Procedure]
Adjust to 4.433619 ±50 Hz with CV200.

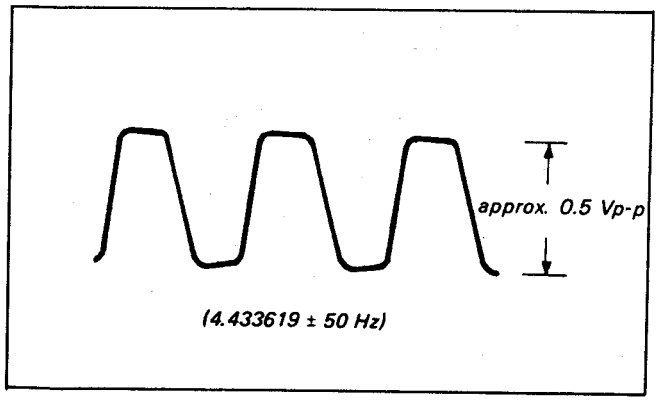


Fig. 5-10. X'tal Oscillator Adjustment

5-3-4. SYNC AGC Pre Adjustment (VI-9AG Board)

Mode: E-E
Input signals: Colour bar
Digital voltmeter or oscilloscope: Pin ⑫ of IC001
[Adjustment Procedure]
Adjust to 2.5 ±0.1 V dc with RV001

5-3-5. Y/C Separation Adjustment (VI-9AG Board)

Mode: E-E
Input signals: Colour bar
Oscilloscope: Pin ⑳ of IC002
Connection: Connect Q107 base to REG GND.
[Adjustment Procedure]
Adjust RV100 and LV100 alternately to minimize residual chroma components.

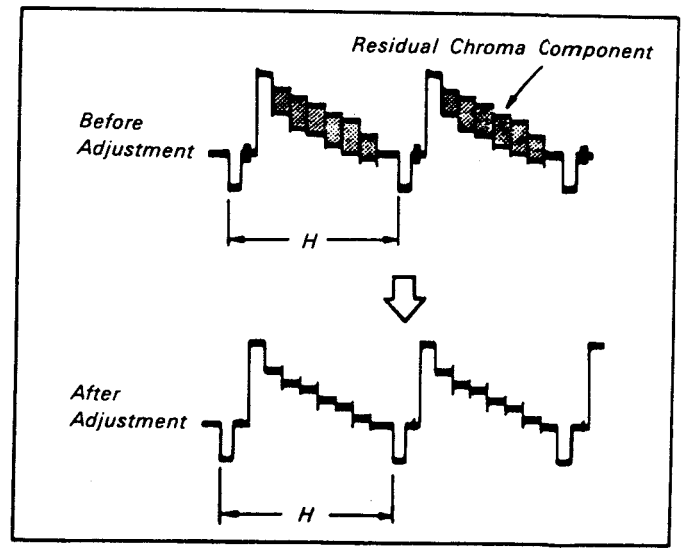


Fig. 5-11. Y/C Separation Adjustment

5-3-6. Y Comb AGC Adjusmtent (VI-9AG Board)

Mode: E-E
Input signals: Colour bar
Oscilloscope: Pin ③ of IC002
Connect a 22 kΩ resistor serially between Pin ③ of IC002 and 10:1 probe.
[Adjustment Procedure]
Minimize the amplitude with RV101.

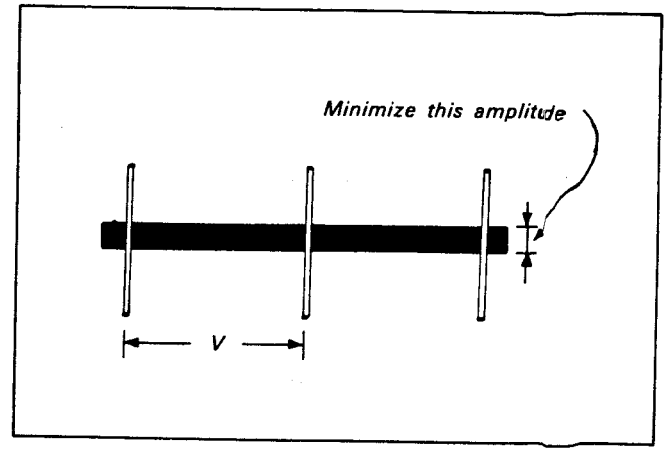


Fig. 5-12. Y Comb AGC Adjustmen

5-3-7. SYNC AGC Adjustment (VI-9AG Board)

Mode: E-E
Input signals: Colour bar
Oscilloscope: Emitter of Q007
VIDEO LINE OUT pin EUROCONNECTOR CN006 ⑲ should be terminated with 75Ω.
[Adjustment Procedure]
Adjust to 0.50 ±0.05 Vp-p with RV001.

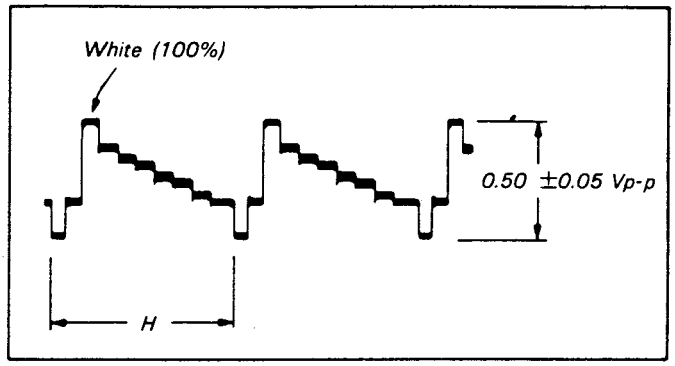


Fig. 5-13. SYNC AGC Adjustment

5-3-8. VIDEO OUT Level Adjustment (VI-9AG Board)

Mode: E-E
Input signals: Colour bar
Oscilloscope: Pin ⑲ of CN006 (VIDEO OUT)
VIDEO LINE OUT pin EUROCONNECTOR CN006 ⑲ should be terminated with 75Ω.
[Adjustment Procedure]
Adjust to 1.00 $^{+0.05}_{-0}$ Vp-p with RV002.

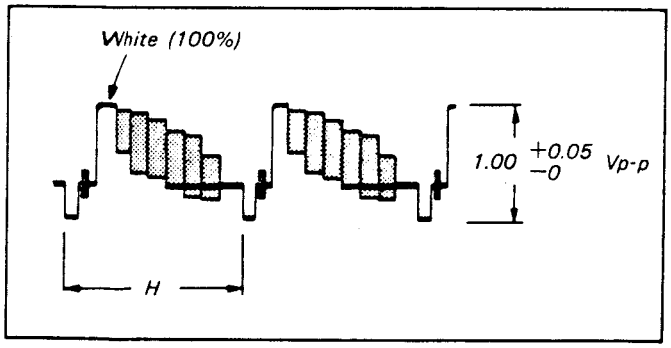


Fig. 5-14. VIDEO OUT Level Adjustment

5-3-9. PB Y Level Adjustment (VI-9AG Board)

Mode: PLAYBACK
Alignment tape: For operation check. (WR5-3CSP) colour bar portion
Oscilloscope: Pin ⑲ of CN006
VIDEO LINE OUT pin EUROCONNECTOR CN006 ⑲ should be terminated with 75Ω.
[Adjustment Procedure]
Adjust to 1.00 ± 0.05 Vp-p with RV006.

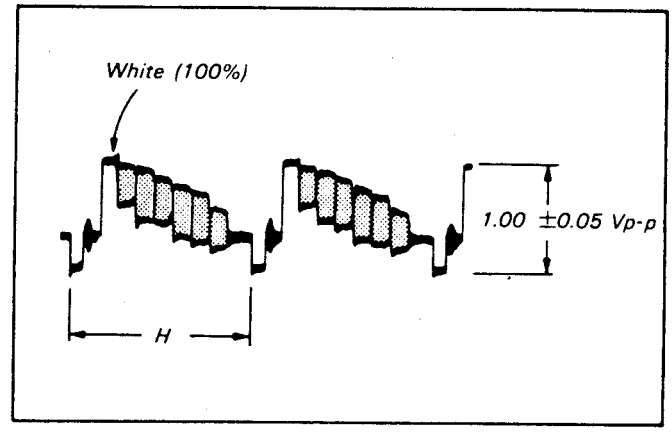


Fig. 5-15. PB Y Level Adjustment

5-3-10. PB PAUSE Colour Level Adjusment (VI-9AG Board)

Mode: PLAYBACK PAUSE
Alignment tape: For operation check. (WR5-3CSP) colour bar portion
Oscilloscope: Pin ㉒ of IC006
[Adjustment Procedure]
Adjust to 500 ± 25 mVp-p with RV103.

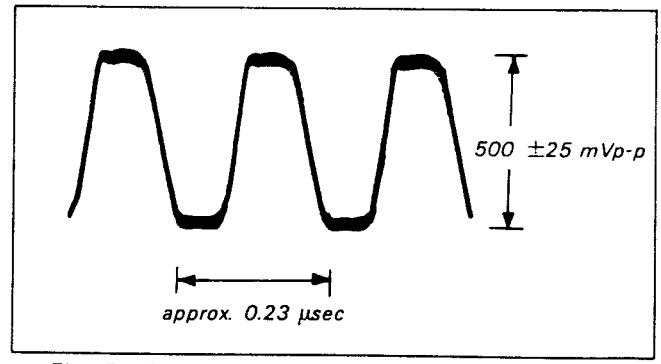


Fig. 5-16. PB PAUSE Colour Level Adjustment

5-3-11. Y FM Carrier Frequency Adjustment (VI-9AG Board)

Mode: E-E
Input signal: None
Frequency counter: TP200 (Pin ⑥ of CN003)
[Adjustment Procedure]
Adjust to 4.20 ±0.05 MHz with RV003.

5-3-12. REC Y Level Adjustment (VI-9AG Board)

Mode: E-E
Input signal: None
Oscilloscope: TP200 (Pin ⑥ of CN003)
[Adjustment Procedure]
Adjust to 0.46 ±0.01 Vp-p with RV203.

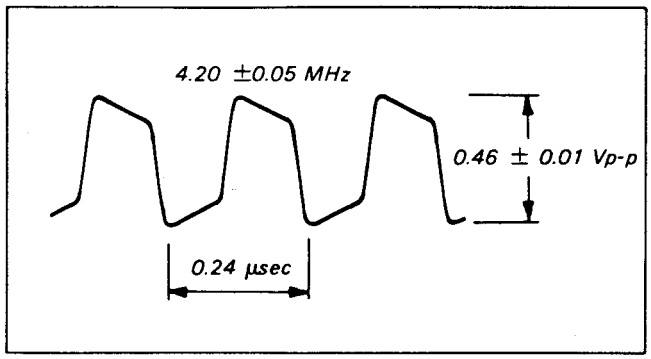


Fig. 5-17. REC Y Level Adjustment

5-3-13. Y FM Deviation Adjustment (VI-9AG Board)

Adjustments of VIDEO OUT level, PB Y level, and Y FM carrier frequency must be finished.
Mode: Self-recording and PLAYBACK
Input signals: Colour bar
Oscilloscope: Pin ⑲ of CN006
VIDEO LINE OUT pin EUROCONNECTOR CN006 ⑲ should be terminated with 75Ω.
[Adjustment Procedure]
1) Record colour bar signals.
2) Play back recorded portions.
3) Check the playback output level.
Standard: 1.00 ±0.05 Vp-p
4) Rotate RV005 as follows and repeat Steps 1) through 3) when the value does not satisfy the standard.

	RV005 rotation direction seen from solder side
Larger than standard value	Counterclockwise (↶)
Smaller than standard value	Clockwise (↷)

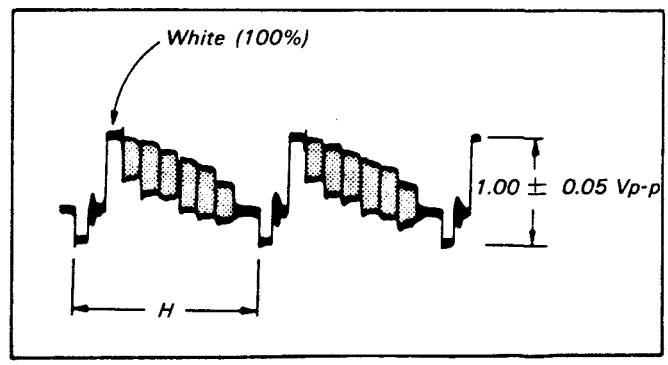


Fig. 5-18. Y FM Deviation Adjustment

5-3-14. White Clip Adjustment (VI-9AG Board)

Mode: E-E
Input signal: Colour bar
Oscilloscope: TP003 (Pin ⑱ of IC001)
[Adjustment Procedure]
Adjust the peak of white (100%) portion to 235 — 240% with RV004.

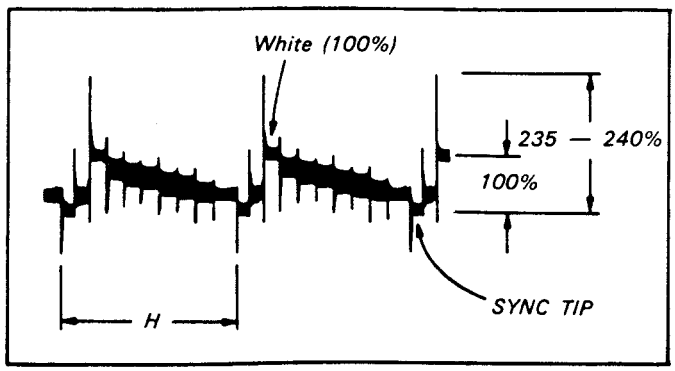


Fig. 5-19. White Clip Adjustment

5-3-15. 375 fH VCO Adjustment (VI-9AG Board)

Mode: E-E
Input signal: Colour bar
Digital voltmeter: Pin ⑳ of IC003
[Adjustment Procedure]
Adjust to 3.00 ±0.05V DC with RV206.

5-3-16. Chroma Emphasis fo Adjustment (VI-9AG Board)

Mode: E-E
Input signals: Colour bar
Oscilloscope: Pin ⑧ of IC004
Connection: Conect the following two places with resistors (47 kΩ).
Pin ㊶ of IC003 — Pin ㉓ of IC003 (REG 5V)
Pin ㊶ of IC003 — Pin ㊲ of IC003 (GND)
[Adjustment Procedure]
Minimize the amplitude of the flat portions of chroma signals with FL200.

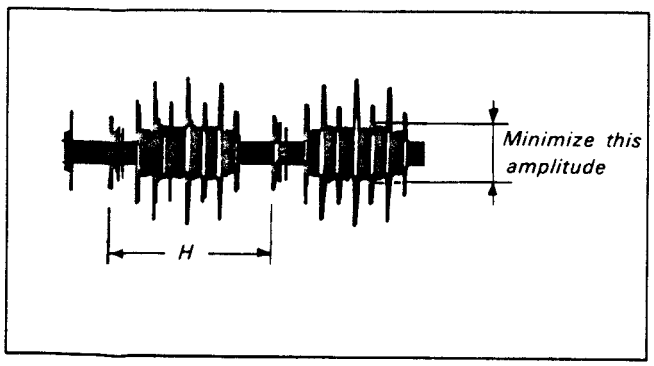


Fig. 5-20. Chroma Emphasis fo Adjustment

5-3-17. Carrier Balance Adjustment (VI-9AG Board)

Mode: PLAYBACK
Alignment tape: For operation checking (WR5-3CL) colour bar portion.
Oscilloscope: Pin ㉜ of IC003
[Adjustment Procedure]
Minimize the 5.17 MHz component with RV202.

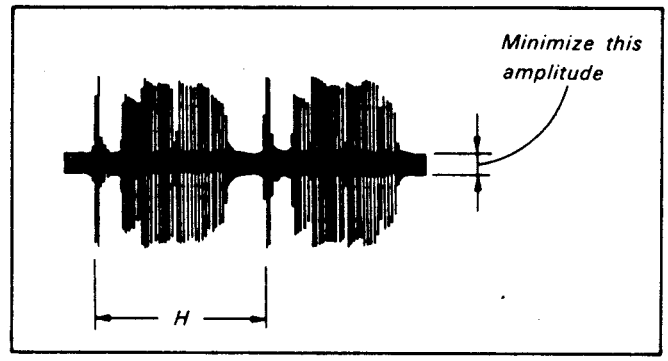


Fig. 5-21. Carrier Balance Adjustment

5-3-18. REC C Level Adjustment (VI-9AG Board)

Mode: E-E
Tape: MP type (CN010 Pin ③ must be 0V DC)
Input signal: Colour bar
Oscilloscope: CN003 Pin ⑥ (REC Y/C/AFM)
Connection: Connect the following three points with jumpers:
Q008 emitter (REC Y) — GND
Q212 base (REC AFM) — GND
IC007 Pin ① (PILOT IN) — GND
[Adjustment Procedure]
Adjust red level to 84 ±9 mVp-p with RV201 (REC C ADJ).

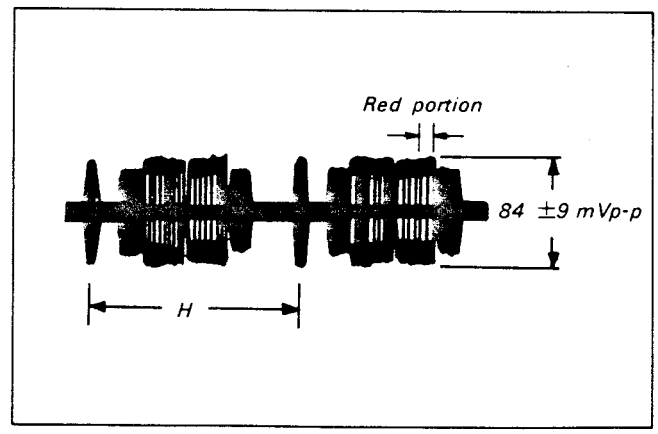


Fig. 5-22. REC C Level Adjustment

5-3-19. REC Y ATF Level Adjustment (VI-9AG Board)

Mode: E-E
Tape : MP type (CN010 Pin ③ must be 0V DC)
Input signal: Colour bar
Oscilloscope: If CN003 Pin ⑥ (REC Y/C AFM) signal level is too small to read easily, do not use a 10:1 probe, but connect directly through a 100Ω resistor as shown in the diagram below.

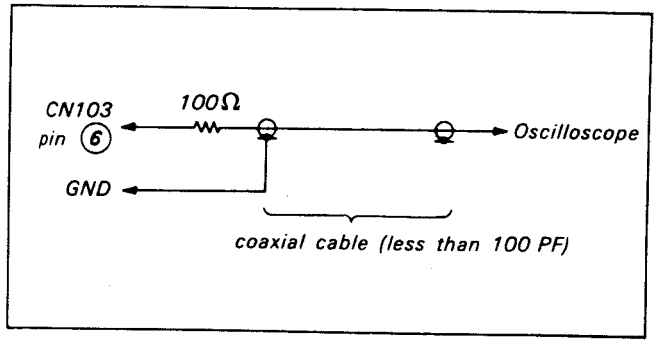


Fig. 5-23.

Connection: Connect the following three points with jumpers:
Q008 emitter (REC Y) — GND
Q200 base (REC C) — GND
Q212 base (REC AFM) — GND

[Adjustment Procedure]
Adjustment to 17 ±2 mVp-p with RV205.

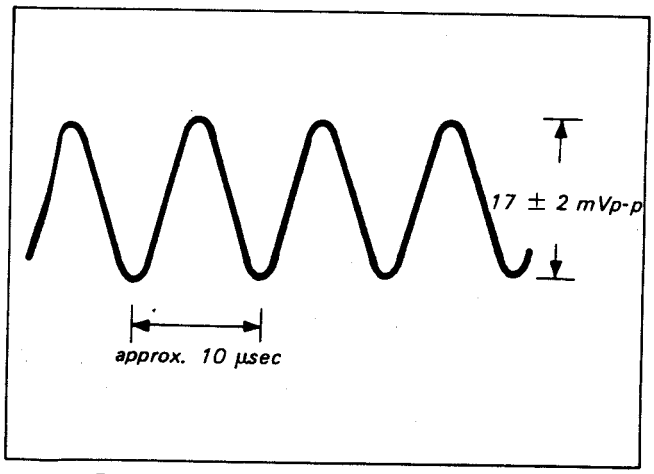


Fig. 5-24. REC ATF Level Adjustment

5-3-20. PCM ATF Level Adjustment (VI-9AG, SS-38F, SS-38G Boards)

Mode: E-E
Tape: MP type (CN010 Pin ③ must be 0V DC)
Input signal: Colour bar
Input select: SIMUL
Audio input signal: None
Oscilloscope: If CN003 Pin ③ (REC PCM) signal level is too small to read easily, do not use a 10:1 probe, but connect directly through a 100Ω resistor as shown in the diagram below.

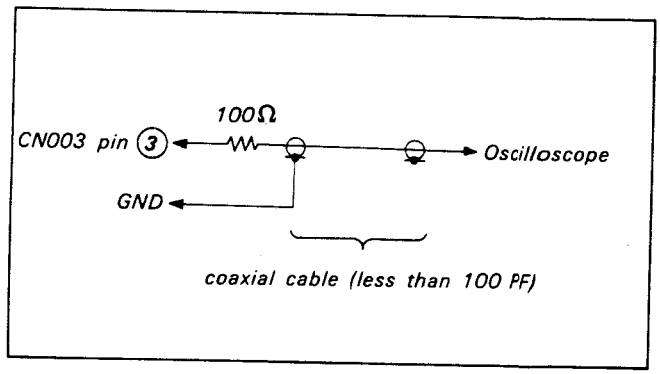


Fig. 5-25.

[Adjustment Procedure]
Adjust to 21 ±2 mVp-p with RV204 (PCM ATF).
Note: When there is a lot of noise, remove VI-9A board CN011 or SS-38F, SS-38G board CN111.

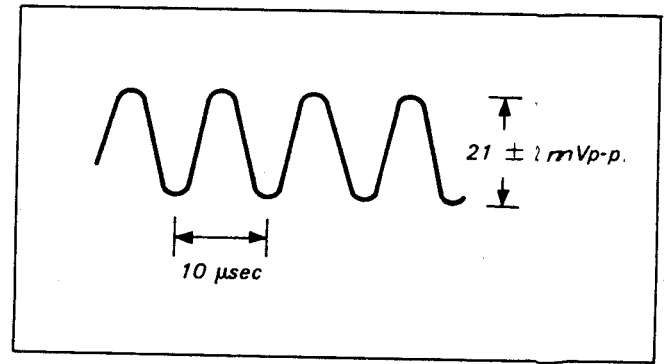


Fig. 5-26. PCM ATF Level Adjustment

SS-38F board . . . . . AEP Model.
SS-38G board . . . . . UK Model.

5-3-21. REC Y Recording Current Adjustment (RP-25D, VI-9AG Boards)

Mode: RECORD
Tape: MP typ (VI-9A board CN010 pin ③ must be 0V DC)
Input signal: no signal
Oscilloscope: Connect the following two points on VI-9AG board.
Q212 base (REC AFM) — GND
IC007 Pin ① (PILOT IN) — GND

[Adjustment Procedure]
Adjust to 200 mVp-p with RP-25D board RV3.

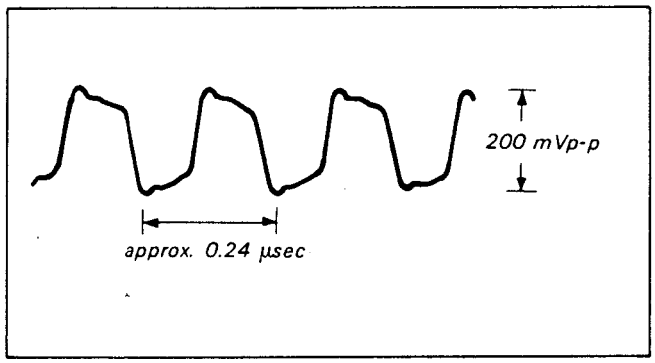


Fig. 5-27.

5-3-22. REC PCM Recording Current Adjustment (RP-25D, VI-9AG Boards)

Mode: RECORD
Tape: MP type (VI-9AG board CN010 Pin ③ must be 0V DC)
Input signal: Colour bar
Oscilloscope: RP-25B board IC1 Pin ㊲
Audio input signal: None
Connection: Connect the following two points on VI-9AG board with jumpers:
Q203 base (REC Y/C/AFM) — GND
IC007 Pin ① (PILOT IN) — GND

[Adjustment Procedure]
Adjust RP-25D board IC1 Pin ㊲ REC PCM signal level to 200 mVp-p with RP-25D board RV5.

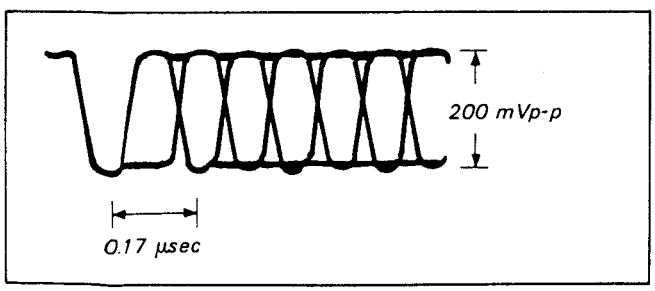


Fig. 5-28.

5-4. AUDIO SYSTEM ADJUSTMENT

Use a colour bar signal as video signal input when performing adjustment.
Connection of Audio Adjustment Measuring Instruments
Connect the following audio measuring equipment in addition to the video measuring instruments.

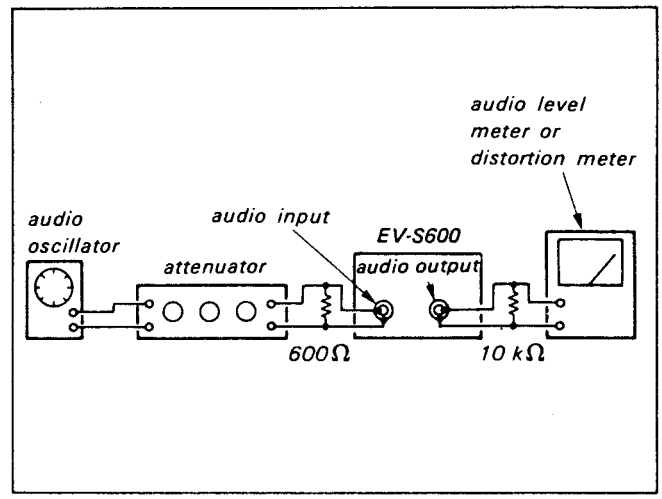


Fig. 5-29.

[Adjustment Order]

1) E-E Output Level Adjustment
2) AFM Carrier Frequency Adjustment
3) AFM Deviation Adjustment
4) AFM Carrier Level Adjustment
5) PCM Master Clock Free Oscillation Frequency Adjustment
6) PCM Playback VCO Free Oscillation Frequency Adjustment
7) PCM Playback Level Adjustment
8) PCM Offset Adjustment
9) PCM Recording Level Adjustment
10) MULTI PCM Frequency Adjustment
11) MULTI PCM Recording Level Adjustment
12) Overall Level Characteristics Check
13) Overall Frequency Characteristics
14) Overall Distortion Ratio Check
15) Overall S/N Check

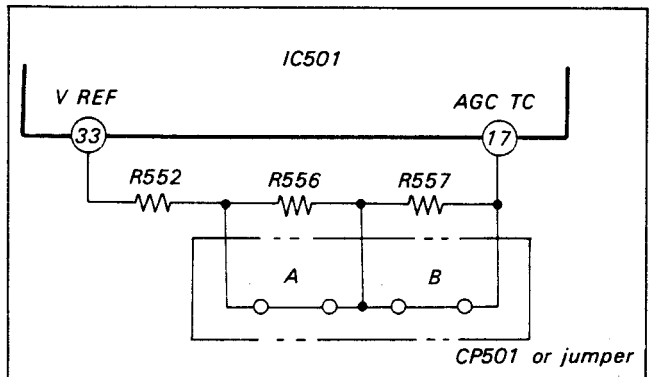
5-4-1. E-E Output Level Adjustment (PC-14B Board)

Mode: E-E
Audio input signal: 400 Hz, −12 dBs (Both L and R)
Check Procedure:

1) Check that AUDIO LINE OUT level is −10 ±1.5 dBs.
2) If not, perform the following adjustment.

[Adjustment Procedure]

1) Remove CP501.
2) Short A (R556) and B (R557).
3) Measure AUDIO LINE OUT level* and open A and/or B according to the tabl below.
   * Measure more than 30 seconds after POWER ON.



AUDIO LINE OUT LEVEL	A	B
more than −10.8 dBs	short	short
−10.8 to −12.2 dBs	open	short
−12.2 to −13.5 dBs	short	open
less than −13.5 dBs	open	open

Fig. 5-30.

5-4-2. AFM Carrier Frequency Adjustment (PC-14B Board)

Mode: RECORD (SP mode)
Audio input signal: no signal
Frequency counter: TP507 (CN603 Pin ①)
[Adjustment Procedure]
Adjust to 1.500 ±0.003 MHz with RV502.

5-4-3. AFM Diviation Adjustment (PC-14B Board)

Mode: PLAYBACK
Alignment tape: operation check (WR5-3CSP)
[Adjustment Procedure]
Adjust audio output level to −7.3 ±0.2 dBs with RV501.

5-4-4. AFM Carrier Level Adjustment (PC-14B Board)

Mode: RECORD (SP mode)
Audio input signal: no signal
Oscilloscope: TP507 (CN501 Pin ①)
[Adjustment Procedure]
Adjust to 120 ±5 mVp-p with RV503.

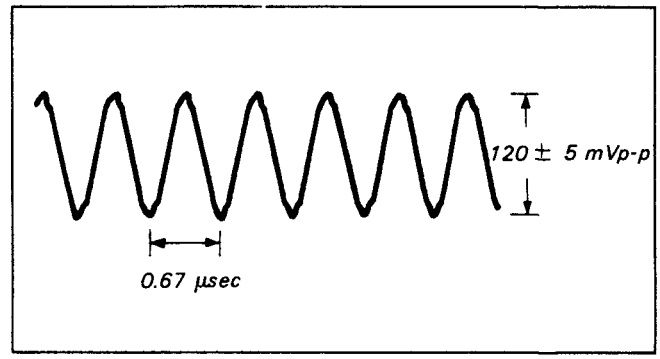


Fig. 5-31. AFM Carrier Level Adjustment

5-4-5. PCM Master Clock Free Oscillation Frequency Adjustment (PC-15B Board)

Mode: RECORD
Frequency counter: IC104 Pin ⑧
Connection: Connect between IC104 Pin ⑭ and +5V (CN102 Pin ①) with a jumper wire.
[Adjustment Procedure]
Adjust to 11.45 ±0.01 MHz with RV103 (M. CLOCK)
[Adjustment Method]

1) After the adjustment, remove the jumper wire which is connected between IC104 Pin ⑭ and +5V (CN102 Pin ①), and confirm that the frequency when connecting IC104 Pin ⑭ and GND is over 11.63 MHz.
2) The waveform of 60 Hz on IC104 Pin ⑭ should be in dormant state (constant duty).

5-4-6. PCM Playback VCO Free Oscillation Frequency Adjustment (PC-15B Board)

Mode: PLAYBACK
Tape: Non-signal recorded tape
Frequency counter: IC103 Pin ⑧
[Adjustment Procedure]
Connect IC103 Pin ① to +5V (CN102 Pin ①) and turn OFF the input AMP. (Return it to the original position after adjustment.)
Adjust to 11.50 ±0.05 MHz with R102.
Note: Be sure to perform the adjustment after an elapse of over 1 mimute when the power supply is turned ON.

5-4-7. PCM Playback Level Adjustment (PC-14B Board)

Mode: PLAYBACK
Alignment tape: 400 Hz section of WR5 3CSP
Audio monitor: PCM
[Adjustment procedure]
Adjust with RV603 so that the audio output level becomes −6.0 ±0.5 dBs.

Note: If there is an output difference between Lch and Rch, adjust to the center level.

5-4-8. PCM Offset Adjustment (PC-14B Board)

Adjustment elements of Rch are shown in parentheses.
Mode: Self-recording (SP mode)
Audio input signal: 400 Hz + 3 dBs (Both L and R)
Oscilloscope: TP305 [TP405]
Set the recording level slide volume so that the audio output level becomes +3 dBs. (Both L and R)
[Adjustment procedure]

1) Playback the self recorded tape and confirm that the clip amount of the upper and the lower waveforms is equal.
2) In the event the clip amount is not equal, confirm the clip amount by turning RV301 [RV401] as shown below.

	Turnig direction of RV301 [RV401] as seen from the ports' side
In the event the upper clip amount is large	Clockwise (↻)
In the event the lower clip amount is large	Counterclockwise (↺)

Note: Be sure to perfom the adjustment alternately, since Lch and Rch effect each other.

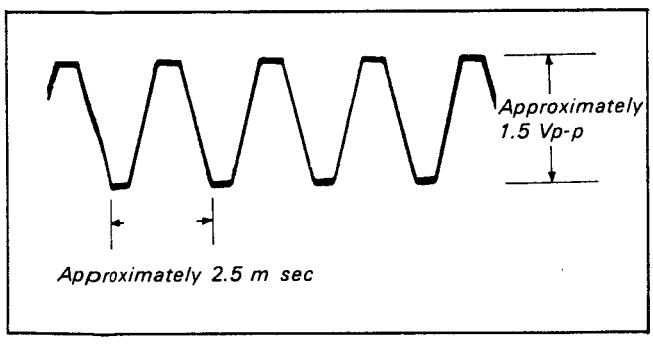


Fig. 5-32.

5-4-9. PCM Recording Level Adjustment (PC-14B Board)

Mode: Self-recording (SP mode)
Tape: MP type
Audio input signal: 1 kHz, −10 dBs (Both L and R)
Audio monitor: PCM
Set the recording level slide volume so that the audio output level becomes −10 dBs.
Adjustment elements of Rch are shown in parentheses.
[Rough adjustment]
Put into REC mode and adjust with RV304 [RV404] so that the levels of IC604 Pins ⑬ and ⑯ become approximately −10 dBs.
[Adjustment procedure]
Playback the self-recorded tape, and adjust with RV304 [RV404] so that the audio output level becomes ±0.5 dB in E-E mode.

Note: Be sure to perform the PCM playback level adjustment in 5-4-7 before performing this adjustment.

5-4-10. MULTI PCM Frequency Adjustment (PC-15B Board)

Mode: RECORD
Tape: MP type
Frequency counter (Should be connected to the output of an oscilloscope): Q807 collector and IC802 Pin ⑤
[Adjustment procedure]
Adjust Q807 collector with RV801 and IC802 Pin ⑤ with RV802 so that their frequencies become 230 ±0.5 kHz, respectively.

5-4-11. MULTI PCM Recording Level Adjustment (PC-15B Board)

Mode: RECORD
Tape: Mp type
Oscilloscope: Q807 collector
[Adjust procedure]
Adjust to 2.7 ±0.1 Vp-p with RV803.

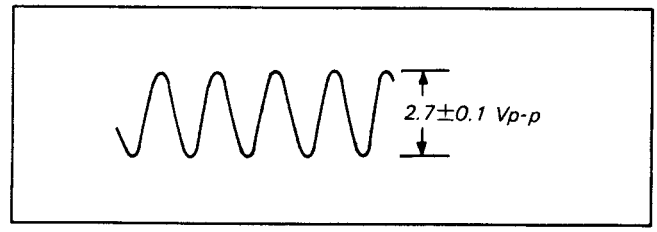


Fig. 5-33.

5-4-12. PCM [AFM] Overall Level Characteristics Check

Mode: Self-recording
Tape: MP type
Audio input signal: 400 Hz, −10 dBs
The value of AFM is shown in parentheses.
[Checking method]

1) Record
2) Playback the recorded section.
3) Confirm that audio output level is −10 ±1.5d Bs [−11 ±2.5 dBs]

5-4-13. Overall Frequency Characteristics

[PCM]
Mode: Sekf-recording and playback (SP mode)
Tape: MY type
Audio input signal: −10 dBs (Both L and R) 20 Hz, 100 Hz, 400 Hz, 10 kHz and 14 kHz
Audio monitor: PCM

1) Record by setting recording level slide volume so that the audio output level becomes 400 kHz, −10 dBs.
2) Playback the recorded sections and the individual output levels should be within the standard values.

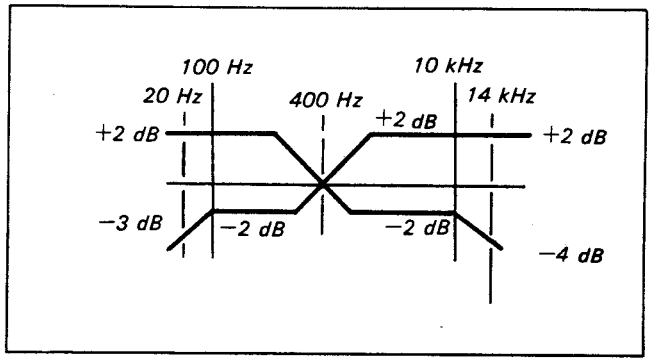


Fig. 5-34. PCM overall frequency characteristics

[AFM]
Mode: Self-recording and playback (SP mode)
Audio input signal: −20 dBs (Both L and R), 30 Hz, 400 Hz and 14 kHz
Tape: MP type
Audio monitor: STD

1) Playback the recorded section and the individual output levels should be within the standard values.

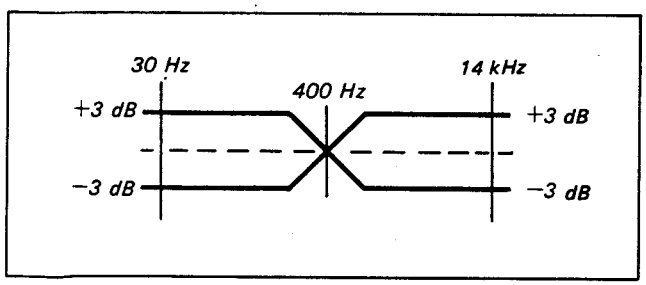


Fig. 3-35. AFM overall frequency characteristics

5-4-14. Overall Distortion Ratio Check

[PCM]
Mode: Self-recording and playback
Tape: MP type
[Checking method]
1) Input 1 kHz, −10 dBs and adjust with the recording level slide volume so that the output becomes −10 dBs.
2) Record
3) Playback
4) Distortion ratio for both SP and LP modes becomes less than 0.35% (When filter is not used).
5) Input 1 kHz, 0 dBs and adjust with the recording level slide volume so that the output becomes 0 dBs.
6) Record
7) Playback
8) Distortion ratio for both SP and LP modes becomes less than 1.0% (When filter is not used).

[AFM]
Mode: Self-recording and playback
Tape: MP type
[Checking method]
1) Input 400 Hz, −10 dBs
2) Record
3) Playback
4) Be sure that the distortion ratio in both SP and LP modes is less than 0.5% (When the filter as shown in Fig. 5-36 is used), and less than 1.0% (When filter is not used).

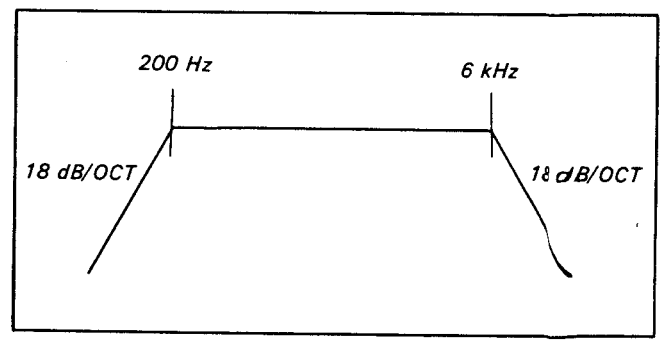


Fig. 5-36. Distortion ratio meausring filter

5-4-15. Overall S/N Check

[PCM] Mode: Self-recording and playback
Tape: MP type
Audio input signal: No signal (Short circuit AUDIO LINE IN pin)
[Checking method]
Playback the recorded sections, and noise level should be less than −88 dBs (When using an *A curve acoustic filter).

[AFM]
Mode: Self-recording and playback
Tape: MP type
Audio input signal: 400 Hz, −10 dBs and non-signal
[Checking Method]

1) Record a 400 Hz, −10 dBs signal.
2) Record in non-signal state (short circuit AUDIO LINE IN pin)
3) Playback the recorded sections and check that the level difference in both SP and LP modes between the signal (400 Hz section) and noise (non-signal section) is over 60 dB*.
   * When using an A curve acoustic filter.
   (When not using an A curve acousic filter, it should be over 57 dBs in both SP and LP modes.)

5-5. TUNER SECTION

5-5-1. TU AGC Adjustment (TA-29C Board UK model, TA-28A Board AEP model)

1) Receive broadcast TV signals in the highest contrast.
2) Turn RV1 clockwise until snow (intensity-modulated display) noise appears on the TV screen.
3) Slowly turn RV1 counterclockwise until the snow (intensity-modulated display) noise disappears.
4) Receive signals of all channels in turn, and ensure that there is no cross modulation beat, image deformation or snow noise effect.

5-5-2. ATF Adjustment (TA-29C Board UK model, TA-28A Board AEP model)

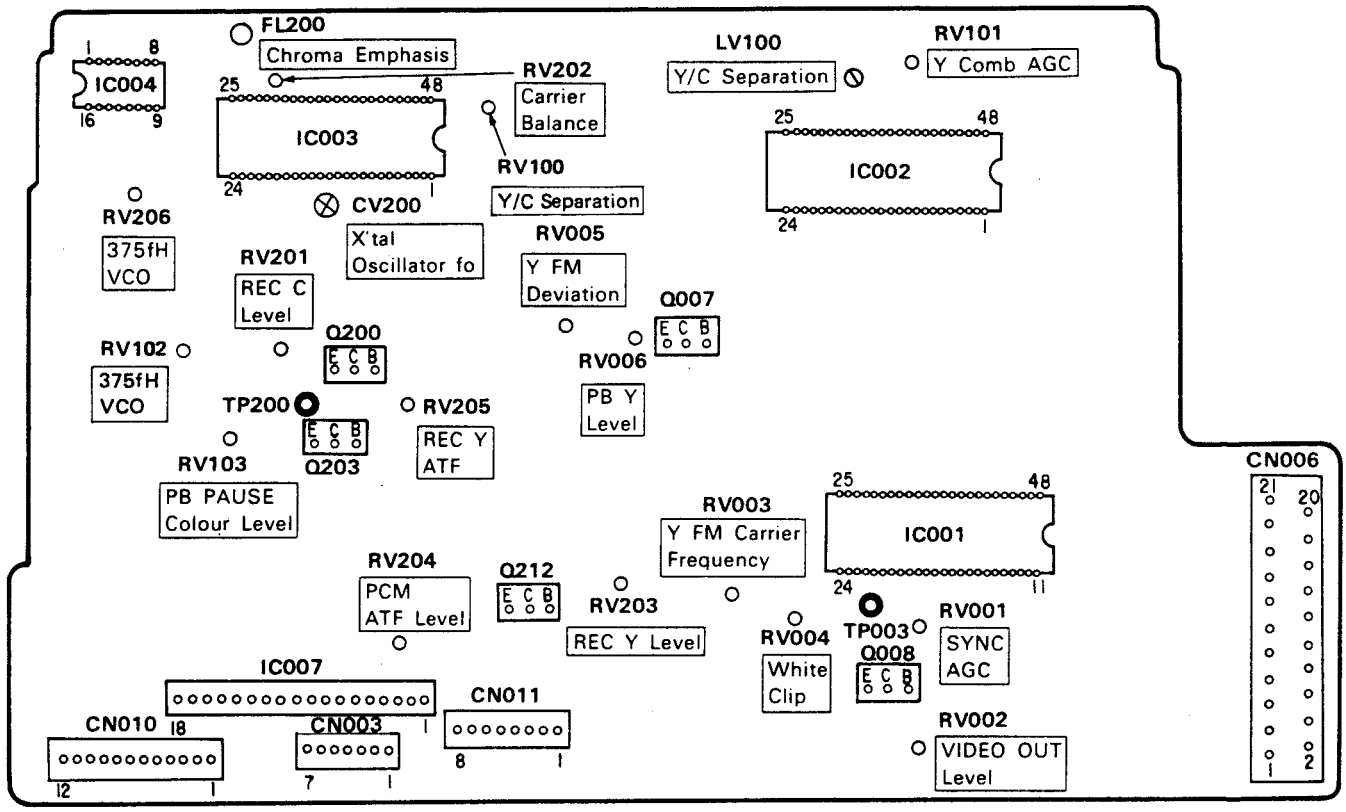
Adjustment elements of ES model are shown in parentheses.

1) Receive broadcast TV signals.
2) Turn off the AFT switch.
3) Press the tuning button and set for the optimum state while observing the monitor TV screen. (There should be no beat).
4) Turn on the AFT switch.
5) Adjust L8 [L5] to make sure that there is no beat or picture disturbance.

5-5-3. Separation Adjustment (TA-28A Board AEP model only)

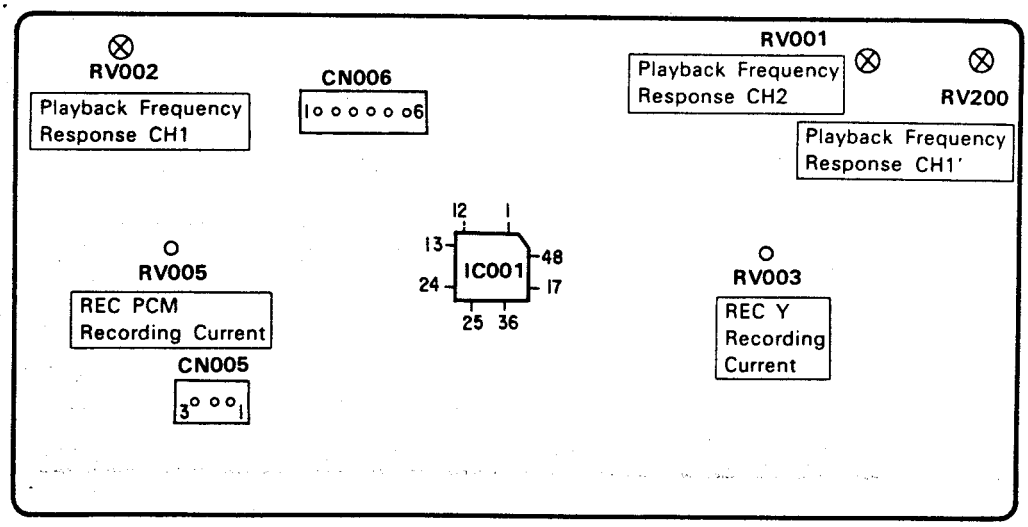
1) Set signal generator into stereo mode, and only Lch signal or Rch signal should be 400 Hz, 100% modulation.
2) Connect an oscilloscope to CN9 Pin ① (AUDIO L OUT) or Pin ② (AUDIO R OUT).
3) Adjust with RV2 so that Rch output becomes minimum when only Lch is modulated and Lch output becomes minimum when only Rch is modulated.

VI-9AG BOARD (SOLDER SIDE)

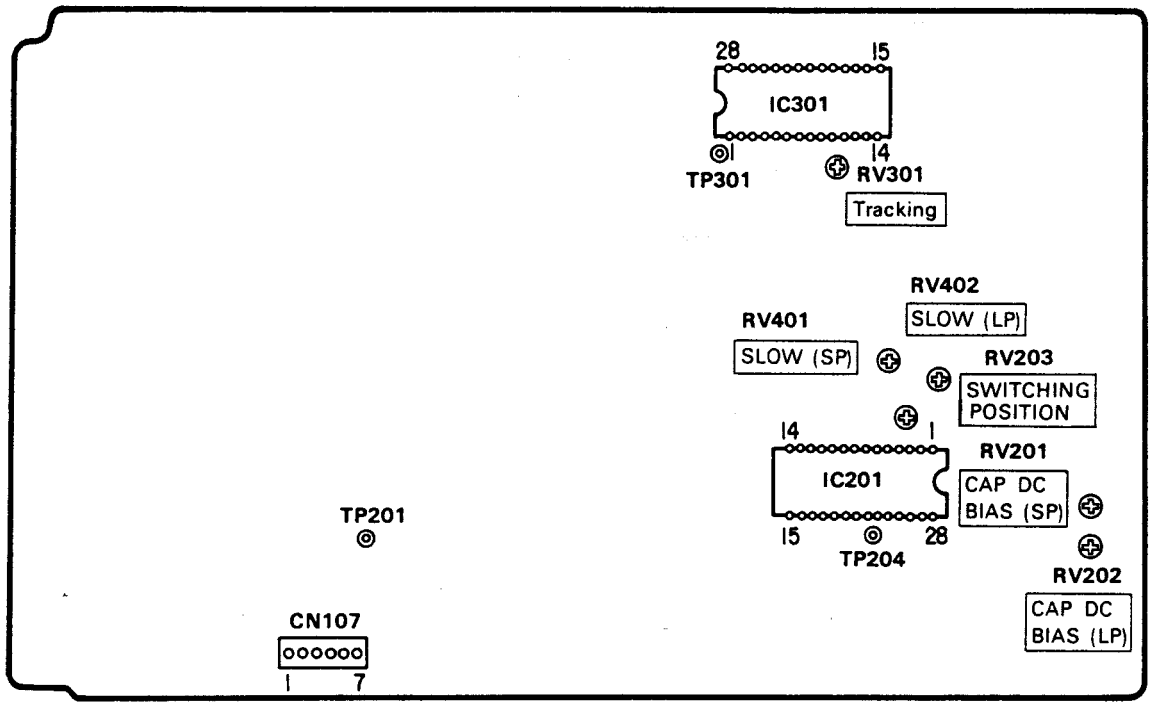


CV200, FL200 and LV100 can only be adjusted from the component side

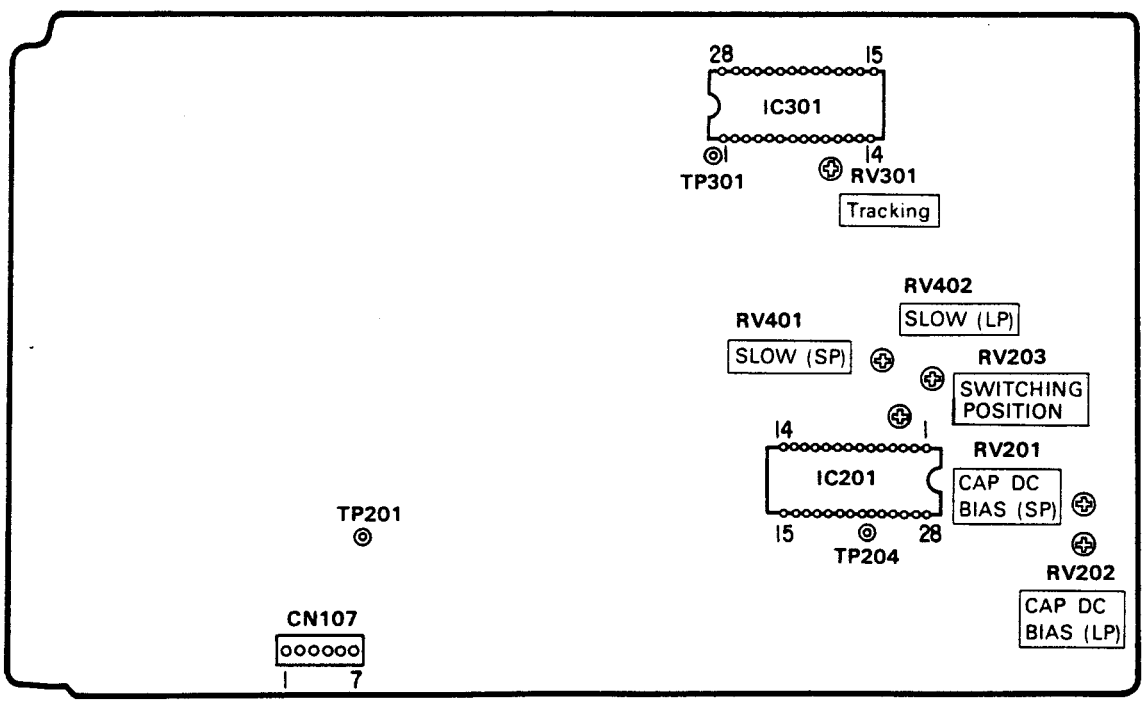
RP-25D BOARD (SOLDER SIDE)



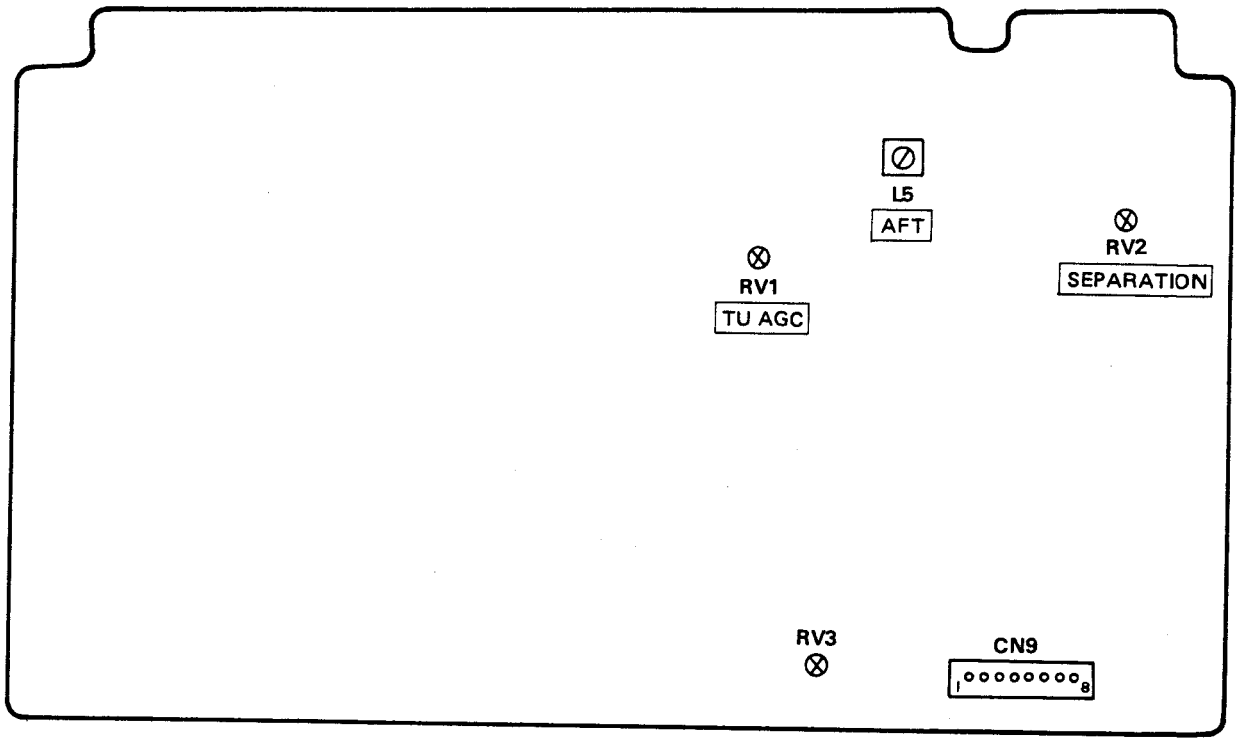
SS-38F BOARD (COMPONENT SIDE) —AEP Model—



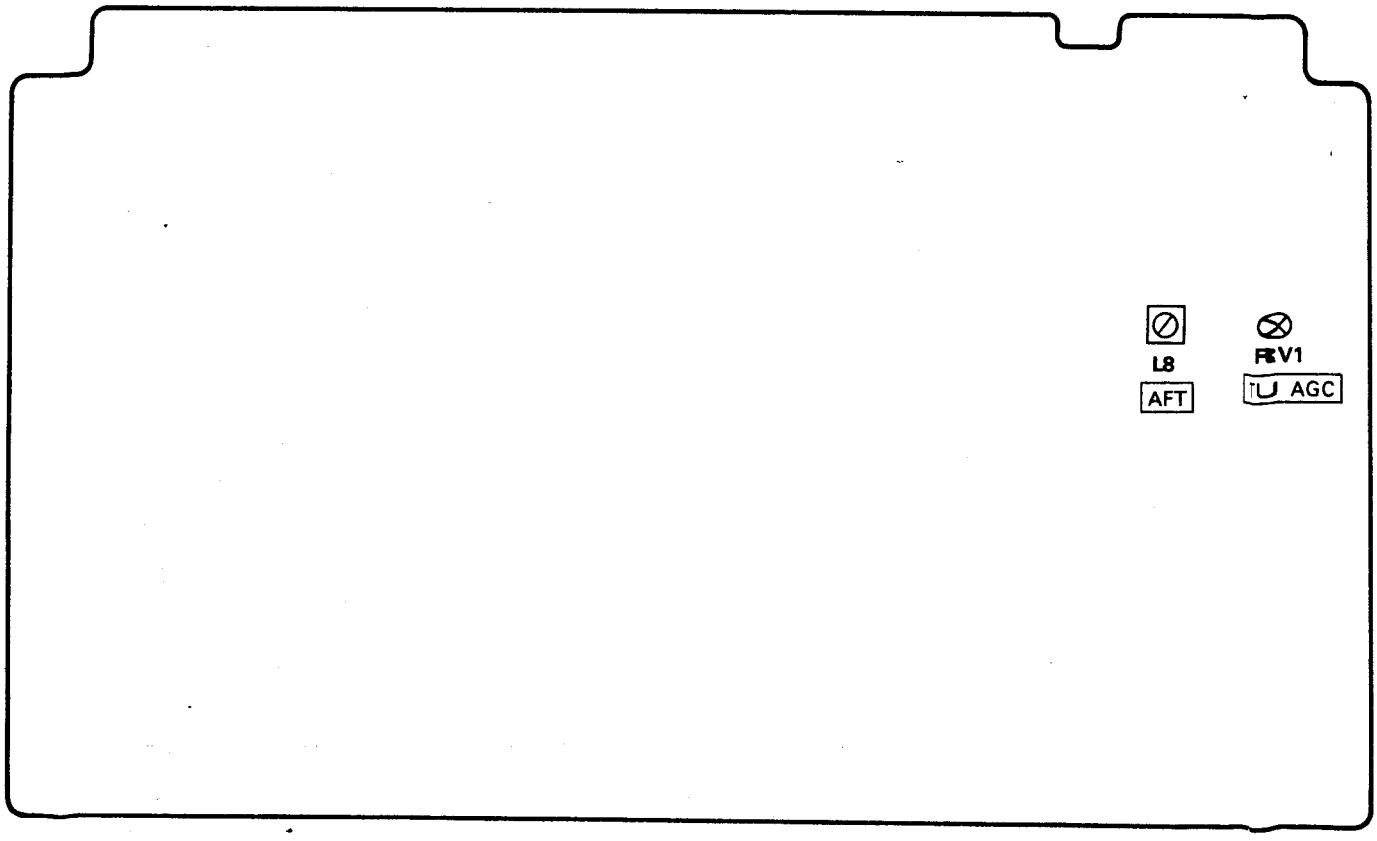
SS-38G BOARD (COMPONENT SIDE) —UK Model—



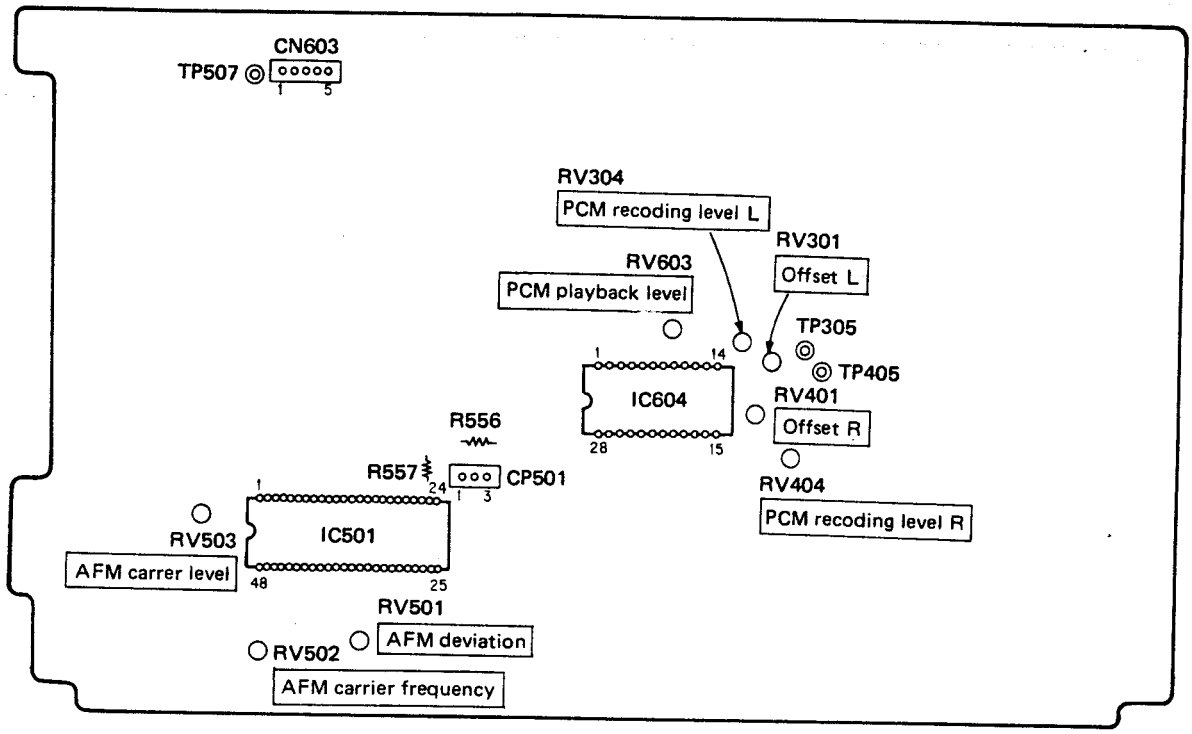
TA-28A BOARD (COMPONENT SIDE) – AEP Model –



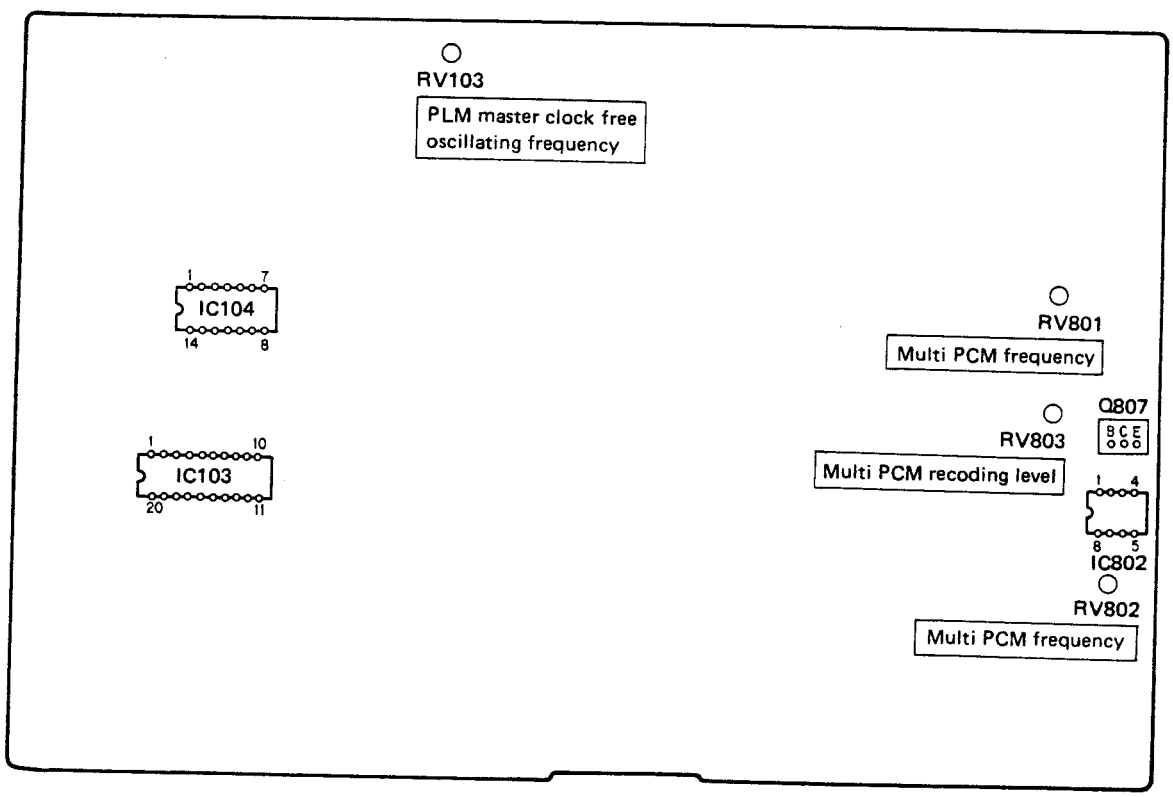
TA-29C BOARD (COMPONENT SIDE) – UK Model –



PC-14B BOARD (SOLDER SIDE)

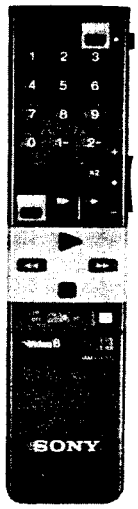


PC-15B BOARD (SOLDER SIDE)



RMT-405

SERVICE MANUAL



SPECIFICATIONS

Remote Commander RMT-405

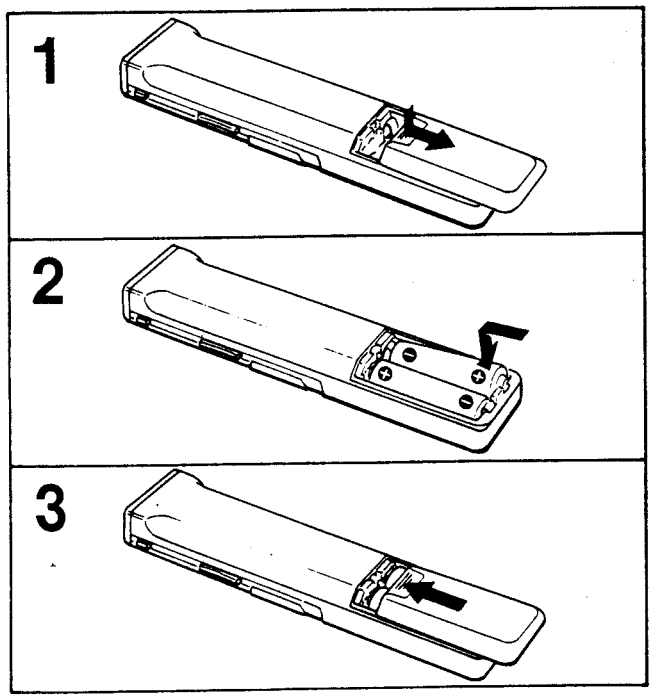
Remote control system	Infrared control
Power requirements	3V dc, 2 IEC designation R6 (size AA)
Dimensions	Approx. 45 × 20 × 175 mm (w/h/d) (1 3/4 × 3 3/4 × 7 in.) incl. projecting parts and controls
Weight	Approx. 66 g (2.3 oz) without batteries

REMOTE COMMANDER

SONY®

1. REMOTE COMMANDER SET-UP

F-1



Battery Insertion F-1

1 Open the lid.
2 Insert two IEC designation R6 (size AA) batteries with correct polarity.
3 Close the lid.

Battery life

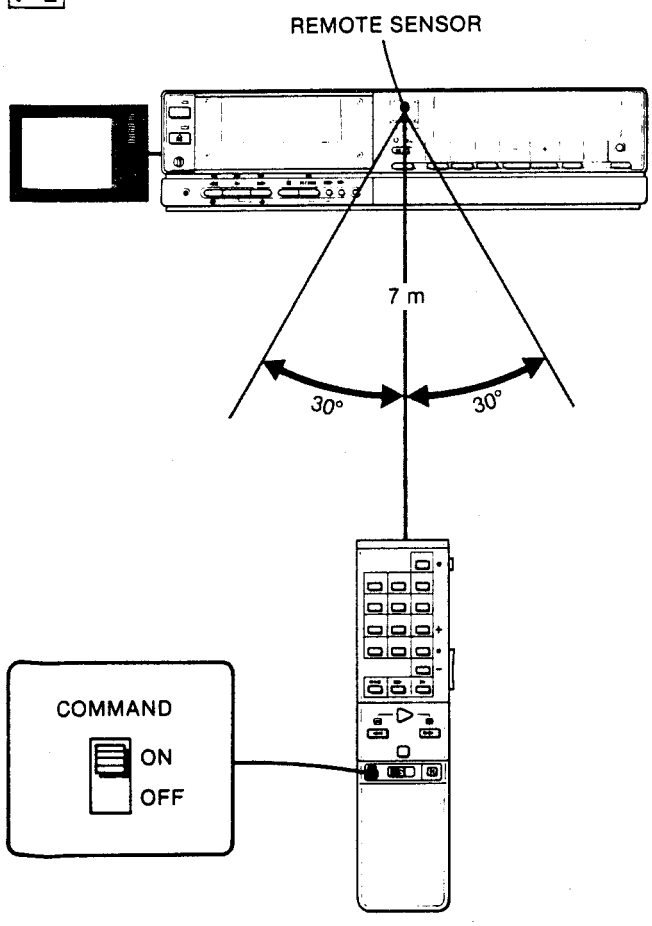
In normal operation, batteries will last for about six months. If the range of the Remote Commander becomes noticeably shorter, replace the batteries with new ones. When the batteries are exhausted, the indicator will not light when the buttons on the Commander are pressed.

If the Remote Commander is not to be used for a long period of time, remove the batteries to avoid possible damage from battery leakage.

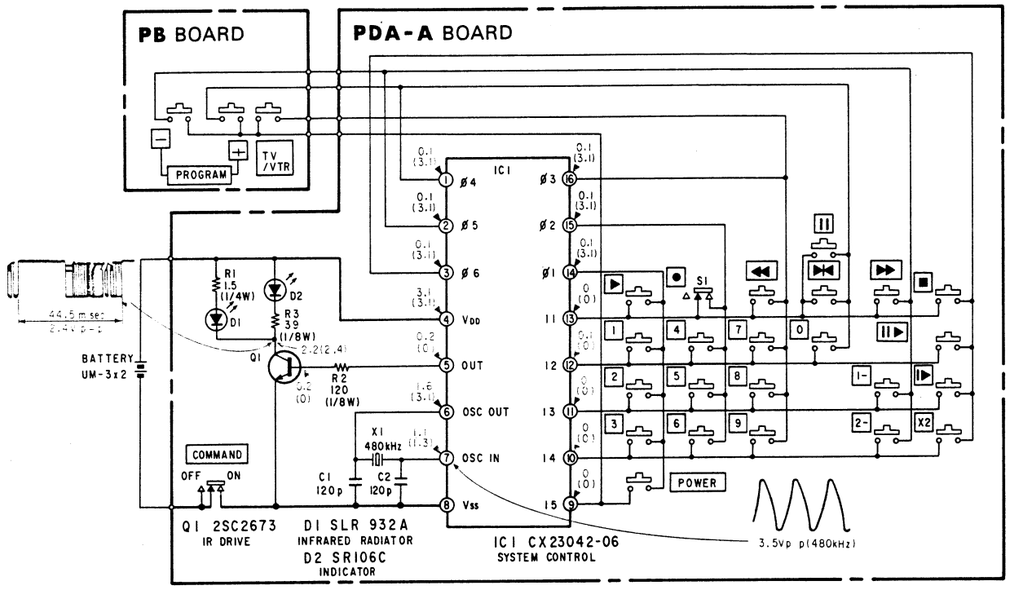
Notes

- There should be no obstacles between the Commander and the REMOTE SENSOR.
- Operable range is limited. F-2
  Distance: Approx. 7 meters (23 feet) from the REMOTE SENSOR
  Angle: Approx. ±30 degrees from the centre.
  The shorter the distance between the Commander and the EV-S700ES/UB, the wider the angle within which the EV-S700ES/UB can be controlled.
- Set the COMMAND switch to ON to operate the Commander.
  Set to OFF when the Commander is not in use.

F-2



2. SCHEMATIC DIAGRAMS

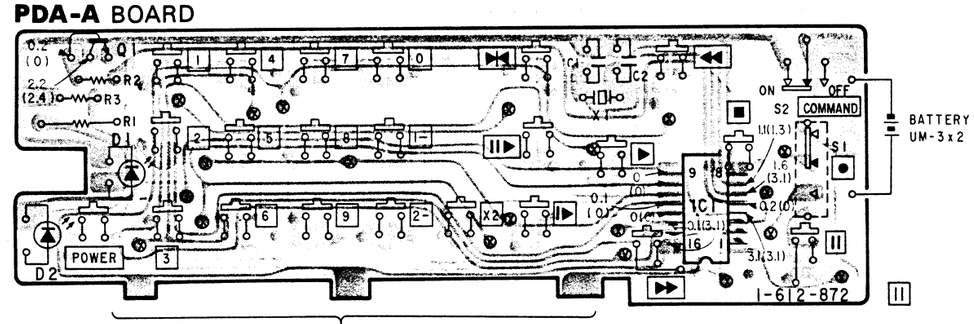


Note:

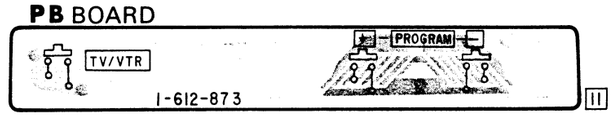
- All resistors are in ohms.
- All capacitors are in μF (p:pF) unless otherwise noted.
  50V or less are not indicated except for electrolytic capacitors.
- [ ]: panel designation.
- ——— : B+ bus.
- Voltages and waveform are for when [1] button is pressed.
- Voltages in ( ) are taken with button not pressed.
- The voltage value is measured using a digital tester (10MΩ).

3. PRINTED WIRING BOARDS

PDA-A BOARD



PB BOARD

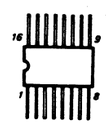


Note:

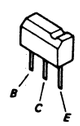
- ○— : indicates a lead wire mounted on the component side.
- ▬ : soldering side
- : component side
- : B+ pattern
- : Carbon pattern.
- ⊗ : Through hole.

SEMICONDUCTORS

CX23042-06

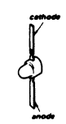


2SC2673



SLR-932A

SR106C

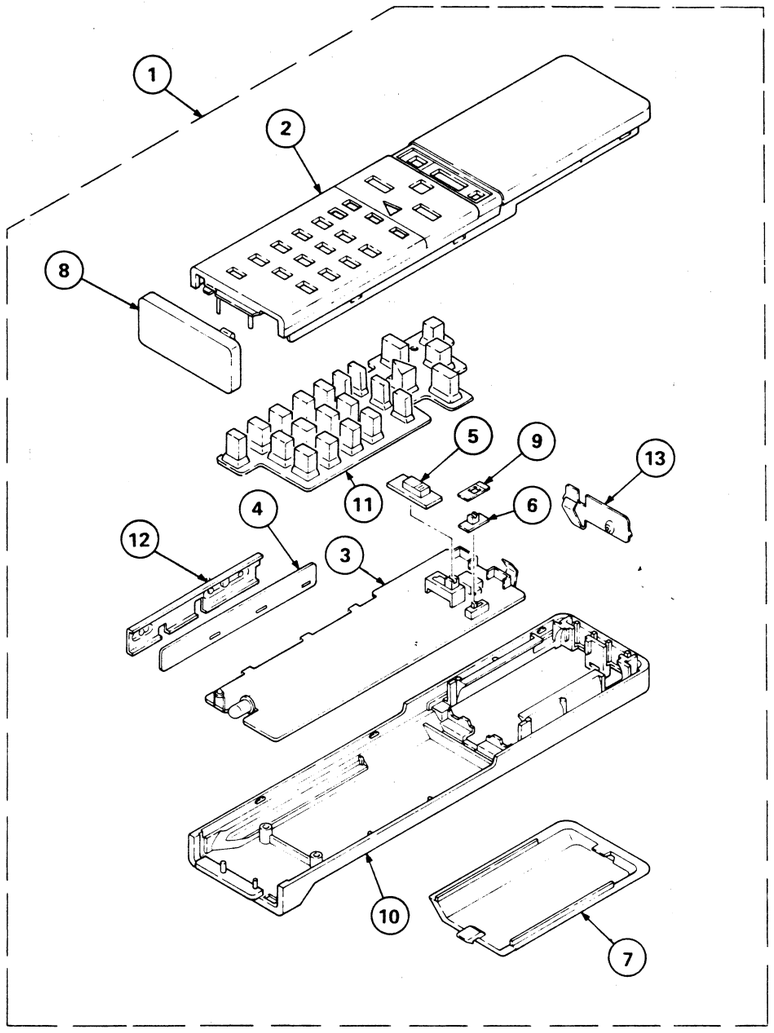


4. EXPLODED VIEW

NOTE:

- Itmes with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.



No.	Part No.	Description	Remark
1	A-6765-736-A	COMMANDER ASSY (RMT-405)	2-12
2	2-389-307-22	CASE (UPPER), COMMANDER	
3	*1-612-872-11	PDA-A BOARD	
4	*1-612-873-11	PB BOARD	
5	2-387-101-01	BUTTON, RECORDING	
6	2-387-102-01	BUTTON, SLIDE	
7	2-387-105-11	COVER, BATTERY	
8	2-387-107-01	PANEL, COMMANDER (FRONT)	
9	2-387-113-11	PLATE, COLOR	
10	2-387-123-11	CASE (LOWER), COMMANDER	
11	2-389-305-01	RUBBER (B), CONTACT	
12	2-389-312-01	RUBBER (A), CONTACT	
13	4-350-925-00	TERMINAL (C), BATTERY	

5. ELECTRICAL PARTS LIST

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS
- All resistors are in ohms
- F : nonflammable

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

CAPACITORS
- MF : μF, PF : μμF

COILS
- MMH : mH, UH : μH

Ref.No	Part No.	Description				Remark
	*1-612-872-11	PDA-A BOARD **********				
	2-387-103-01	TERMINAL (A), BATTERY				
	2-387-104-01	TERMINAL (B), BATTERY				
		CAPACITOR				
C1	1-102-107-00	CERAMIC	120PF	10%	50V	
C2	1-102-107-00	CERAMIC	120PF	10%	50V	
		DIODE				
D1	8-719-912-39	DIODE SLR-932A				
D2	8-719-100-06	DIODE SR106C				
		IC				
IC1	8-759-916-10	IC CX23042-06				
		TRANSISTOR				
Q1	8-729-967-32	TRANSISTOR 2SC2673				
		RESISTOR				
R1	1-247-073-00	CARBON	1.5	5%	1/4W	
R2	1-247-809-00	CARBON	120	5%	1/8W	
R3	1-247-797-00	CARBON	39	5%	1/8W	
		SWITCH				
S1	1-554-364-00	SWITCH, SLIDE				
S2	1-553-977-00	SWITCH, SLIDE				
		CRYSTAL				
X1	1-527-476-00	OSCILLATOR, CERAMIC				
**********						
	*1-612-873-11	PB BOARD ********				
**********						